

The Mining Journal

AND ATMOSPHERIC RAILWAY GAZETTE,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 589.—Vol. XVI.]

LONDON: SATURDAY, DECEMBER 5, 1846.

[PRICE 6D.]

SIXTY-FOUR SHARES IN ONE OF THE FIRST SILVER-LEAD MINES in the county of CARDIGAN, and SHARES in other valuable BRITISH MINES.

MR. C. WARTON is directed to submit to PEREMPTORY SALE, BY AUCTION, under peculiar circumstances, in one or more lots, at the Auction Mart, opposite the Bank of England, on Wednesday, the 16th of Dec. next, at Twelve o'clock (unless an acceptable offer for the whole be previously made), SIXTY-FOUR SHARES, or 1-20th part, of the valuable SILVER-LEAD MINES, known as LLAN-CYNFELIN MINES—conducted on the Cost-book System: £5 per share have been paid, and the operations already effected give promise of splendid results to the shareholders. See Mining Journal, 18th April and 17th June last. Since which reports, the most satisfactory progress is making. At the same time, will be SOLD, SHARES in Botallack, Treleigh Consols, Tamar, Dolcoath, East Wheal Crofty, and other mines. Particulars, in due time, may be had at the Mart, at the Golden Lion, Liverpool; at Pearce's Hotel, Truro and Penzance; and of Mr. C. Warton, auctioneer and estate agent, No. 38, Threadneedle-street, London.

VALUABLE AND IMPORTANT SHARES IN MINES IN CORNWALL FOR SALE. **MR. TIPPET** has been directed to SELL, BY PUBLIC AUCTION, on Wednesday, the 16th day of December inst. at Two o'clock in the afternoon, at Pearce's Hotel, Truro, in such lots, and subject to such conditions, as shall be then and there produced, the following highly valuable and important SHAREHOLDINGS:—FOUR (184th) SHARES of and in Crocragwa Copper and Tin Mine, in the parish of Kewnap; TWO (190th) SHARES in Trevelick Copper Mine, in the parish of Gwennap; ONE and a HALF (3615th) SHARE in the Eastern Barrier Copper Mine, in Gwennap; and TWENTY (3815th) SHARES in the West Wheal Jewel Copper and Tin Mine, in Gwennap.

The agents on the mines will give information; and for further particulars, application may be made at the auctioneer's office, in Pydar-street; or at the office of Messrs. Smith and Roberts, solicitors, Truro.—Truro, Dec. 2, 1846.

FORTY-INCH STEAM-ENGINE FOR SALE.—An excellent CORNISH CONDENSING ENGINE TO BE SOLD, BY PRIVATE CONTRACT, cylinder 40 inches diameter, in a steam case; stroke 9 feet in the cylinder, and 8 feet in the shaft. This engine now stands at the Frogeck Mine, near Aberystwyth, and may be viewed by application to the agents on the mine. It will be sold with or without two cylindrical boilers, which are attached to it, and will be delivered by the owners on the Quay at Aberystwyth. The engine is perfectly complete, and in good condition—it has never done much work. The price of the engine, including the first piece of rod, the steam and feed pipes, and all boiler connections, is £500, delivered at Aberystwyth.

The boilers, with the engine, or separately, is £12 per ton on the Quay at Aberystwyth. Also, a PLUNGER LIFT, of 15 fathoms in length, applicable to a water-work or shallow colliery. The plunger pole is 22 inches diameter, and the column of 24 inches bore. The price of the lift, complete, is £25 10s per ton for the cast-iron parts, delivered in Aberystwyth, and 3d. per lb. for all the bolts, rings, &c., delivered.

Applications to be made to John Taylor, jun., Esq., 2, Duke-street, Adelphi, London; or to George Fossett, Esq., Aberystwyth.

Liaburne Mines, Nov. 27, 1846.

WANTED, a PISTON, for a 20-horse power DISC ENGINE.

—Price and particulars to be sent to Mr. Hough, Librarian, Tenby, Pembroke-shire.—Dec. 2, 1846.

LEAD MINES TO LET.—The LEAD MINES of CRAIG-TON, situated in the parish of Minnigaff, and stewardry of Kirkcubright, Scotland, are now ready TO BE LET, on LEASE. These mines, the property of Lady Heron Maxwell, of Heron, are understood to contain a great quantity of valuable ore.—Offers may be addressed to Lady Heron Maxwell, at Kirkcubright, by Newton Stewart; to Walter Bell, there, who will give any local information that may be required. Nov. 25, 1846.

LEAD MINES TO LET.—The LEAD MINES, situated at BLACKCRAIG, in the parish of Minnigaff, and stewardry of Kirkcubright, Scotland, will now BE LET, on LEASE. These mines, the property of Robert Nugent Dunbar, Esq., are understood to contain a great quantity of valuable ore.—Offers may be addressed to Robert Nugent Dunbar, Esq., at Machermore, near Newton Stewart, Scotland. Nov. 25, 1846.

N.B.—As these mines, at Craighon and Blackraig, are contiguous to each other, it would be advantageous if both were wrought by one company.

TO COAL AND IRONSTONE MASTERS.—TO BE LET. VALUABLE MINES, lying under an estate situate at CHESTERTON, in the parish of Wolstanton, in the county of Stafford, consisting of about SIXTY-THREE ACRES, and containing all the COAL and IRONSTONE MINES in the NORTH STAFFORDSHIRE DISTRICT. The estate adjoins the large collieries and iron-works at Apedale, which have been extensively worked for many years. Mr. George Rhead, the tenant, will show the premises.—For further particulars apply to Mr. George Rhead, mine surveyor, Longton, Staffordshire; or to Mr. C. Eaton, Peterham, near Richmond, Surrey.

TO BE LET, THE PARK-HILL MINES, DEAN FOREST. GLOUCESTERSHIRE—containing ONE MILLION TONS OF COAL, and ONE MILLION TONS OF IRON ORE, which, being calcareous, smelts well with argillaceous ironstone, and may be delivered in large quantities to the Staffordshire, Shropshire, and Welsh iron-works, at a price far below the cost of local ironstones. The mines are drainable by level, and can be opened at a trifling expense; and, were blast-furnaces erected, their produce might be smelted on the spot into excellent iron.—Apply (post paid) to Henry H. Fryer, Esq., solicitor, Coleford, Gloucestershire.

GLENKENS LEAD AND COPPER MINES. KIRKCUDBRIGHTSHIRE.—In consequence of MINERALS, of considerable value, having been found on the ESTATES in which the GLENKENS MINES are situate, an Act of Parliament has been obtained, to enable the trustees to GRANT MINERAL LEASES. These mines are situated in the centre of a mineral country, and in the vicinity of the flourishing lead works of Carlsphal, Lead Hills, the Newton Stewart, and Hasel Island Copper Mines, the Kirkcubrightshire Mining Company's works, and others in that part of Scotland.

The proprietor has been, for the last two years, exploring and opening the ground; and five promising lodes have been proved, which are now being opened and extended by Cornish miners. There being every prospect of a most satisfactory result at an early period, as appears from the reports of the several mine agents who have inspected the lands, as also of the captain now superintending the works, a company is being formed, to give the mines a fair trial, on the principle of the Cost-book System, by dividing the interests into 1000 shares, of which some few still remain unappropriated.

Plans of the site, comprising about 1900 acres, and the several reports, may be seen, and every information obtained, at the offices of Messrs. Bullock and Luscombe, No. 35, Lincoln's Inn-fields, to whom applications for shares must be made.

TO CAPITALISTS.—CARMARTHENSHIRE AND GLAMORGANSHIRE, SOUTH WALES.—The AGENT of an extensive estate, with the attention of Ironmasters, Coal, Manufacturers, Farmers, and Capitalists in general, to this announcement—he is prepared to ENTER into ARRANGEMENTS with respectable PARTIES for the LEASING, on long terms, of VARIOUS DESCRIPTIONS of PROPERTY, now the object of public attention, and situate in Carmarthenshire and Glamorganshire, and near a flourishing and fast-rising commercial town, seaport, and floating dock, manufacturing, shipbuilding yards, wharfs, store and dwelling-houses; and, in the coal and iron districts, SITES for WORKS, joining a railroad and canal, leading, by their main trunk and branches, to three seaports—water-power is almost general.—SITUATIONS for RURAL and MARINE RESIDENCES in the most beautiful parts of the country, commanding views of Swansea and Carmarthen Bays, and the Black Mountain, with good roads, cheap markets, and daily communication with Bristol, Gloucester, and the metropolis.

The estate is situated in 24 parishes, offering, in every variety of soil and scenery, numerous objects of interest to the geologist, the sportsman, and the admirer of the picturesque. As an inducement to capitalists to embark in such agricultural improvements, as draining, planting, erections of proper homesteads, &c., which now so deservedly occupy public attention, LEASES of NINETY-NINE YEARS will be granted for these purposes. Cheap fuel, labour, fuel, and raw material of every description, will give the manufacturer an advantage over every other part of Great Britain; while the large and still increasing trade in coal affords an intercourse with all parts of the world, for importing the produce of their localities at cheap back freights, and for forwarding to their destination the manufactured articles. This more particularly applies to those undertakings where the consumption of coal forms a principal ingredient.

The South Wales Railway will pass through the town, touching the three seaports, and giving over a large proportion of the estate on the sea-coast; while the contemplated inland railways will bring the collieries, ironstone, and stone quarries, within an easy distance of the agricultural counties of Hereford and Worcester, and the great chain of railway communication, connecting Birmingham, Liverpool, Manchester, and all the important manufacturing districts of England.

For further particulars apply to F. L. Brown, solicitor, Llanelly; John Williams, solicitor, 1, Verulam-buildings, Gray's Inn, London; Messrs. Brooks and Green, estate agents, 38, Old Broad-street, London; Mr. John Farram, estate agent, 29, Soth's-street, Liverpool; Alfred Henderson, solicitor, Albion Chambers, Bristol; Messrs. Horsfield and Harrison, solicitors, Leeds; and Mr. G. H. Belas, 66, Camden-street, Dublin.

UNITED STATES MINES.

COPPER ORE, from the best localities, as Gray, Black Oxide, and Sulphuret. COBALT OXIDE, yielding from 5 to 80 per cent. CHROME, yielding from 30 to 47 per cent. MANGANESE, yielding from 75 to 90 per cent. LEAD ORE, of the best quality. WINE, in soap of Blende and Calamine. LIGNITE, FORM STONE, WHITE VITREOUS FELSPAR, BLACK LEAD, PURE WHITE LEAD, MICA, in small and large sheets.

THE ABOVE NATURAL PRODUCTIONS may be obtained in any quantity, and on the most reasonable terms, by applying to Dr. Lewis Trenchard, New York City.

GREAT SOUTH TOLGUS COPPER AND TIN MINING COMPANY.—(ON THE COST-BOOK SYSTEM.)

Capital £4500, in 1500 shares, of £3 each.—Deposit £2 per share—the remainder, as required, in calls not exceeding 10s. each per share.

This valuable mining property, held under a lease for 21 years, at the reduced dues of 1-16th, is situated in the parish of Bedruth, in the county of Cornwall, and immediately adjoins, on the south, the well-known Great Wheal Tolgus Mine, which realised, during its late workings, a profit of £280,000—the greater part of which was derived from the various levels, from the adit to 110 fms. below, and from a length of ground within 100 fms. east and west of the great cross-course.

In this set there are eight known lodes, three of which have proved very productive, as far as they have been wrought upon—£5000 worth of rich copper ore having been raised therefrom in a short time. The other five lodes are in virgin ground, below the adit level. None of the lodes in this set have been yet so far wrought upon as to intersect the great cross-course—to do which, is one of the leading features that render the prosecution of this mine so highly desirable.

The report of the mining agents in the prospectus—emanating from men of acknowledged celebrity and most extensive practical knowledge and information—is highly flattering, and fully justifies the conclusion, that, under judicious management, a liberal profit will be the result of a vigorous prosecution of this work, and as well renders the detail of further particulars unnecessary.

The individual liability of shareholders in this company is limited to the amount and number of shares respectively held; and any proprietor may, at any time, determine his or her liability by a relinquishment of their respective shares, which, when so determined for the whole amount of shares required; but, if the deposit upon such shares be not promptly paid by the day prescribed in the letter of allotment, such shares will be granted to the next unapplied applicant.

Applications for shares, prospectuses, &c., to be made to the secretaries of the company, at their offices, 25, Castle-street, Liverpool; or at the office of the Mining Journal, 26, Fleet-street, London. JOHN PAINTER & CO., Secretaries pro tem. 25, Castle-street, Liverpool, Dec. 4, 1846.

WHEAL BARBARA SILVER-LEAD AND COPPER MINE, two miles from the port of WADEBRIDGE, CORNWALL.

Capital £12,500, in 2500 shares, of £5 each.—Deposit 30s. per share.

REGISTERED PURSUANT TO ACT.

This mine is in a district long known as productive of silver-lead and other ores; on the east the Treburget Mine has produced immense quantities. The proprietors have driven an adit about 50 fathoms, and sunk a shaft on a large lode, highly productive, depth considered, of silver-lead and copper ores; an assay, by Mr. Richard Rodda, of St. Austell, gave 44 oz. 12 dwts. to the ton of lead, and other lodes are known to exist within the set.

The proprietors retain one-half of the shares, free of deposit, but subject to call, as consideration for the property and cost up to August last—the remaining 1250 shares pay the deposit of 30s. each, to provide the engine, and carry on the works, which the proprietors confidently expect will shortly become profitable.

About one-half of the 1250 shares are yet to be appropriated, for which application may be made to the directors, at the company's office, 8, Gresham-street, London, where reports, prospectuses, maps, specimens, &c., may be seen. 8, Gresham-street, London, Nov. 13, 1846.

NEWBRIDGE AND TAFF VALE COLLIERY, GLAMORGANSHIRE.—3000 shares, at £10 each.

This valuable colliery is situated in the parish of Llanwern, in the county of Glamorgan, in the centre of the South Wales Mineral Basin, contiguous to New Bridge, 13 miles from Cardiff; and the Taff Vale Railway, from Cardiff to Merthyr Tydfil, runs through the property—granted, by a lease of 30 years, for the term of 31 years. The property is surrounded with profitable collieries—one of which (Mr. Coffin's) adjoins this, and supplies the Great Western Railway. Three veins are found to be throughout this property—the Goffion Vein, 3 ft. thick—the Cymmer Vein, 3 ft. thick—and Coffin's Vein, 4 ft. thick. These veins—proved by the usual computation—will yield an aggregate quantity of five millions tons. This, by working 200 tons per day, from one pit only, at a profit of 2s. 6d. per ton, will yield a clear income of upwards of £7500 per annum; but, as this rate of produce will last considerably more than three times the period of the lease, the colliery will be worked by more pits, and consequently, yield a profit of at least £20,000 per annum, at a cost of, say, 6s. per ton, and sale 8s. 6d. per ton; but Mr. Coffin obtains considerably more per ton; and, therefore, it is but fair to suppose the present company will obtain the same; in which case, the profit will be upwards of £30,000 per annum. Even this large sum cannot be supposed to be too highly estimated, when it is recollected that the utmost cost is estimated at 6s. per ton, and the sale only at the moderate price of 8s. 6d. per ton—whereas all coal of the district is sold above the estimate, and that the Taff Vale Railway runs through the property—that the colliery is within 19 miles of the large shipping port of Cardiff—that the coal can be raised from the pit and directly placed on the railway waggon—and that the coal is known to be of superior quality for steam engines, from the fact of its being used by the Great Western Railway. The colliery will be in full operation in about two years. For the first year the shareholders will receive a dividend of only 5 per cent. out of the first year's produce; but, as in the meantime, the Goffion and Cymmer veins will be reached, and be in gradual increase of produce—the second year's dividends will be large; and, therefore, there is every fair reason to say, this undertaking, not only carries the certainty of large profits, but presents fairer and more legitimate prospects of remuneration to the shareholders, than was ever presented to the public.

COST OF PRODUCTION AND CARRIAGE TO SHIPPING PORT.

Getting or Winning	per ton 1s 7d	Wear and Tear	0s 3d
Underground hauling	0 4	Railway Carriage to Port	1 11
Dead Wood	0 8	Shipping Expenses	0 6
Prop Wood	0 1	Divers extra expenses	0 3
Royalties	1 0	Agency and Incidental Charges	0 2
Total	3s 6d		6s 0d

Sale, 8s. 6d.—Cost, 6s. 0d.—Profit, 2s. 6d. per ton.

Application for shares, to be made to Messrs. Roberts, Carter, and Co., mineral surveyors, 21, Portman-street, Portman-square, where the engineer's calculations may be seen in detail (also a plan of the property, and conditions obtained). Prospectuses, &c., may be had at the office of the Mining Journal, 26, Fleet-st., London.

HOLBORN-HILL, SNOW-HILL, AND FARRINGTON-STREET VIADUCT COMPANY.—(REGISTERED PROVISIONALLY.)

Capital £200,000, in £200 shares, of £10 each.—Deposit 11s. per share.

The allotment of shares will take place as early as practicable by the committee of management; and, in the meantime, all further applications for shares are to be made to the solicitors, Messrs. Carritt and Osgood, 8, Guildhall Chambers, Basinghall-street; and applicants are requested to confine their references as much as possible to bankers, brokers, or other parties within the city of London.

The estimate of John Stead, Esq., the civil engineer, and George Smith, Esq., the architect, is highly satisfactory.—Nov. 30, 1846.

HEMP AND FLAX MANUFACTURING COMPANY.—(MR. DONLAN'S PROCESS).—PROVISIONALLY REGISTERED.

To be Incorporated by Royal Charter, limiting the liability of shareholders to the amount of their subscriptions.

Capital £225,000, in 18,000 shares, of £12 10s. each.—Deposit £1 per share.

TRUSTEES FOR THE INVESTOR.

The Right Hon. VISCOUNT INGESTRE, M.P.—Sir GEORGE SINCLAIR, Bart. PROVISIONAL COMMITTEE.

Lord CHARLES HAUGHER, Lowndes-street, Lowndes-square The Hon. AUGUSTUS BERKELEY, Spring-gardens M. J. J. DONLAN, Esq., Abbot's Bromley House, Staffordshire JOHN EDWARDS, Esq., Bankers, near Bagshot J. G. H. HANSON, Esq., St. George's-terrace, Hyde-park H. R. HANSON, Esq., Regent's-park.

(With power to add to their number.)

SUPERINTENDENT OF THE FACTORY—Mr. Donlan.

SECRETARY—Henry Fraser, Esq., M.A., Middle Temple.

BANKERS—Messrs. Rogers, Odling, and Co., Clement's-lane.

SOLICITORS—John Thomas Sanders, Esq., 31, Ely-place, Holborn.

This company, for manufacturing upon the principles of Mr. Donlan, Italian, Russian, Dutch, and colonial, as well as Irish and other home-grown hemp and flax, and all fibrous substances, was formed some years since at Bugely, in Staffordshire, and it is now proposed to establish it on a larger scale.

The factory is in profitable operation, and the balance-sheet for the year 1845 may be inspected by persons taking shares, at the office of the company, and where also samples of the different fabrics are on view, and some of the finest prepared fibres are worthy of the serious attention of silk manufacturers.

Private orders for sail-cloths, tick-cloths, paulings, railway sheets, twills for military trousers, and other fabrics, of superior quality, manufactured from hemp and flax, are executed with despatch.

The necessary deed will be forthwith prepared for the signature of the shareholders.

For particulars, prospectuses, and forms for applications for shares, apply at the office of the company, 10, Coleman-street, London; to J. T. Sanders, Esq., 31, Ely-place, Holborn, the solicitor to the company; or to the undersigned, the agent for the trustees of the invention, and for the promoters of the company. JOHN SIMPSON, 25, Moorgate-street, and 1, Coleman-street-buildings.

THE PATENT SAFETY FUSE.

FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDIENT MODE of effecting this very hazardous operation. From many testimonials to its usefulness with which the manufacturers have been favoured from every part of the Kingdom, they select the following letters, recently received from John Taylor, Esq., F.R.S., &c.:—"I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the PATENTERS, DICKFORD, SMITH, and DAVEY Cambridge, Cornwall.

MINING IN AUSTRALIA.—A GENTLEMAN, who is about to proceed to AUSTRALIA, would be glad to ENGAGE his SERVICES under a MINING COMPANY before he leaves. He has a thorough knowledge of assaying all kinds of minerals and metals, as well as great experience in the Cornish mines—would also get a knowledge of smelting, &c.—Address "A. B." to the care of the Editor of the Mining Journal, 26, Fleet-street, London.

MINING PROPERTY.—CAPITALISTS who are disposed to INVEST in CORNISH and FOREIGN MINES, will find the present opportunity very favourable for so doing. From large sums having been lately diverted from such investments for railway speculations, standard mines are now selling at prices that will pay the purchaser 30 per cent. per annum for his outlay. There are also other mines that are on the eve of paying dividends, which can be recommended with confidence. Applications to be made to Mr. JAMES HERRON, mining agent, No. 3, Adam's-court, Broad-street, London.

MINING OFFICES, THREE KING'S-COURT, LOMBARD-STREET, LONDON.

Mr. R. TREDINNICK, of Cornwall, being in constant communication with practical agents in the several mining districts, PROFFERS his SERVICES to capitalists and adventurers in the PURCHASE and DISPOSAL of SHARES of every description; also, obtaining authentic reports and data relative thereto. Mr. T. has on sale shares in the best dividend-paying mines in Cornwall and Devon, at from three to five years' purchase, whilst those on the eve of paying are selling at corresponding low prices. Every information afforded, on personal application, gratuitously.

BUYER in Condurow, East Croft, North Roskear, Wheal Jane, Cubert, Alfred Consols, Wheal Maria, West Providence, and Wheal Agar; and SELLER in West Seton, Wheal Seton, and all the best dividend paying mines in Cornwall and Devon.

MESSRS. R. CLARK & CO beg to acquaint their friends and the public in general, that they have taken OFFICES as below, where they intend to carry on BUSINESS as STOCK, SHARE, and MINING AGENTS; relying with confidence upon the method adopted by them for conducting all business entrusted to their agency. Messrs. R. C. & Co. solicit a continuance of that support it will be, by strictest attention to all orders, their endeavour to deserve. N.B.—Money advanced upon scrip and other securities. 3, Austinfriars, Broad-street, Oct. 17, 1846.

MESSRS. LINTHORNE, JONES, AND CO., STOCK, MINING, AND SHARE AGENTS.

Every information will be afforded as to the markets and prices of the above, by application (post-paid) at their offices. 48, THREADNEEDLE-STREET, LONDON.

MESSRS. J. PAINTER AND CO., SHAREBROKERS, MINING AND GENERAL AGENTS.

25, CASTLE-STREET, LIVERPOOL. AFFORD EVERY INFORMATION AS TO THE STATE OF THE MARKETS, PRICES, &c., upon application.

CHARLES T. CRAPP, SHARE DEALER, TAVISTOCK.

Possessing facilities of acquiring the earliest information respecting the mines of this important district, proffers his services to gentlemen desirous of obtaining such; whilst his local connection affords him the assistance of the most efficient mining agents in furnishing reports, plans, &c., of mines, to those who may favour him with their instructions.

WILLIAM H. SMITH, MINING SHARE AGENT,

10, WARREN-COURT, THROMGORTON-STREET, has SHARES FOR SALE in the following MINES:—WHEAL BLENCEW, WEST SHEPHERD, WHEAL LOUGA, EAST WHEAL TUNNE, WHEAL MAFF PENTUAN, VICTORIA-TIN MINING COMPANY. N.B.—Every information will be afforded on application.

MINING OFFICES, 1, ST. MICHAEL'S-ALLEY, CORNHILL, LONDON.

WATSON AND CUELL, MINE AGENTS. N.B.—STATISTICAL INFORMATION furnished (on application) to SHAREHOLDERS in MINES in Cornwall, Devon, Scotland, Ireland, Wales, and Spain.

WILLIAM TRENER, DEALER IN RAILWAY AND MINING SHARES.—ESTABLISHED TEN YEARS.

OFFICES, No. 50, THREADNEEDLE-STREET, LONDON.

JOHN HARVEY, SHAREBROKER AND ASSAYER, LISKEARD, CORNWALL.

JAMES LANE, MINING SHAREBROKER, 73, OLD BROAD-STREET, LONDON.

WILSON & FRASER, 2, WELLINGTON-BUILDINGS, LIVERPOOL, and 18, EXCHANGE-PLACE, GLASGOW, have always ON SALE, FIG-IRON, BAR-IRON, RAILWAY CHAIRS, and RAILWAY BARS.

WILLIAM FOX AND SON, No. 53, CASTLE-STREET, LIVERPOOL, have always ON SALE, FIG-IRON, RAILWAY BARS, CHAIRS, and IRON of every description.—TIN PLATES, WIRE, &c.

ASTURIAN MINING COMPANY.—The board of directors

herely give Notice, that they have made a further CALL of ONE POUND per share upon the shares held in the capital stock of this company, and that such call is PAYABLE at the London and County Banking Company, 21, Lombard-street, on or before the 31st day of December next. By order, K. MACKENZIE, Secretary.

CALLINGTON MINES COMPANY.—The THIRD

DIVIDEND of ONE POUND per share, for the current year, will be PAYABLE on Wednesday, the 16th inst., and following Wednesdays, between the hours of Ten and Three o'clock.—44, Finsbury-square, Dec. 3, 1846.

CONSOLIDATED TRETOIL MINING COMPANY.—The

directors hereby give Notice, that, at the General Meeting of shareholders, on the 26th ult., a CALL was made of FIVE SHILLINGS per share, PAYABLE at the offices of the company, 8, George-yard, Lombard-street, on or before the 19th December inst. Dec. 4, 1846. HENRY THOMAS, Secretary.

RHYMNEY IRON COMPANY.—A GENERAL MEETING

is hereby specially called of the shareholders of the Rhymer Iron Company, to take place at the London Tavern, on Wednesday, the 16th inst., at half-past One o'clock precisely, for the purpose of determining the best mode of raising the necessary sum for paying off the mortgage and loan notes, with a view to an early payment of dividends. Laurence Pountney-hill, Dec. 2, 1846. T. E. SCUDAMORE, Secretary.

ST. JOHN DEL REY MINING COMPANY.—Notice is

hereby given, that the NINTH HALF-YEARLY DIVIDEND, being TEN SHILLINGS per share on the shares in this company, will be PAID at this office, on Tuesday, the 5th January next, and any succeeding day, between the hours of Ten and Four. Forms for claiming the dividends may be obtained at the company's office, and must be left three clear days for examination previous to payment. 8, Tokenhouse-yard, Lothbury, Dec. 1, 1846. GEO. D. KEOGH, Secretary.

TINCROFT MINING COMPANY.—Notice is hereby given,

that a QUARTERLY GENERAL MEETING of the shareholders in this company will be HELD at this office, on Thursday, the 24th Dec. next, at Three o'clock in the afternoon precisely.—44, Finsbury-square, London, Nov. 30, 1846.

UNITED HILLS MINING COMPANY.—Notice is hereby

given, that the SCRIPHOLDERS of this company, intending to take NEW SHARES, pursuant to the resolutions of the special general meeting of the company, held this day, must deposit in the office of the company, No. 8, Adam's-court, Broad-street, their SCRIP SHARES, and PAY the sum of £2 10s. for each new share allotted to them, on or before the 12th day of December next, otherwise they will forfeit their right to have such new shares. Every shareholder will be entitled to one new share for every four scrip shares so deposited and paid upon. By order of the board, JAMES SMITH, Secretary.

[The resolutions referred to appeared in the Mining Journal of the 14th Nov.]

NOTICE TO THE MANAGERS OF MINING COMPANIES.

SMELTING WORKS, &c. Mr. MITCHELL (late Mitchell and Field) begs to announce, that ASSAYS and ANALYSES of all descriptions of ORES, MINERALS, and FURNACE PRODUCTS, are conducted at his LABORATORY, 28, HAWLEY-ROAD, KENTISH TOWN, to which direction all communications are to be addressed. N.B.—Instruction in all branches of assaying and mineral analysis as usual.

PATENT GALVANISED IRON WIRE ROPE WORKS

MILLWALL, POPLAR.

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £30, under the ordinary process. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging.

MELLING'S ATMOSPHERIC AND HIGH-PRESSURE STEAM-ENGINE.

The combination here presented of the old atmospheric system, with the high-pressure system of modern days, will strike at once our engineering readers as remarkable for great ingenuity and entire originality. We must confess, that our own impressions of it go a good deal farther; we think it offers the promise of very considerable utility, as uniting great simplicity of operation with an unusual economy of steam power. We give Mr. Melling's description of the engine in his own words:—"My invention consists in the combination, in one steam-engine, of the two systems of construction known as the atmospheric and high-pressure; that is to say, of cylinders open at top, or one end to the atmosphere, with close cylinders, in which steam is raised to a high degree of pressure. And my mode of doing so may be described generally, as consisting in introducing, between two atmospheric, or open-ended, cylinders, a high-pressure cylinder, of smaller dimensions than the others, and working all three cylinders by means of pistons attached to one common piston-rod, at one length of stroke each.

Fig. 1 exhibits a sectional plan of a set of cylinders thus arranged.

Fig. 2, an elevation of the same.

Fig. 3, a section through the slide bars and blocks.

Fig. 4, an end view of the piston and guide rods.

Fig. 5, an end view of brackets, or lugs, cast on the atmospheric cylinders, to carry slide rods.—AA are the atmospheric cylinders.

B, the high-pressure cylinder; DDD, the pistons, which are coterred to the piston-rod at equal distances; CC, metallic stuffing-boxes, which are regulated and kept tight by a screw and wedge, or key; FF, communication valves, opening from the high-pressure cylinder to the atmospheric cylinders; GG, inner cylindrical cases, which are cast to the piston-cover of the atmospheric cylinders, and have projecting lugs, HH (figs. 1 and 4), through which are fastened wrought-iron tension-rods, II, which communicate with the slide blocks, JJ, moving parallel betwixt the round bars, KK; T (fig. 1) is a female joint for the reception of the connecting-rod (the ordinary cross-head being, in this engine, dispensed with); MM are bonnets, which can be moved to get access to the communication valves; N, the steam chest, or box, containing an ordinary slide-valve, for the admission of steam.

Fig. 6 exhibits a sectional elevation of the steam admission and communication valves, with the gearing for working them. In this view, the injection, or vacuum valve, *m*, of the left-hand cylinder, and the sniff-valve, *o*, of the right-hand cylinder, are also shown.

Fig. 7 is a plan of the gearing for working the valves; and

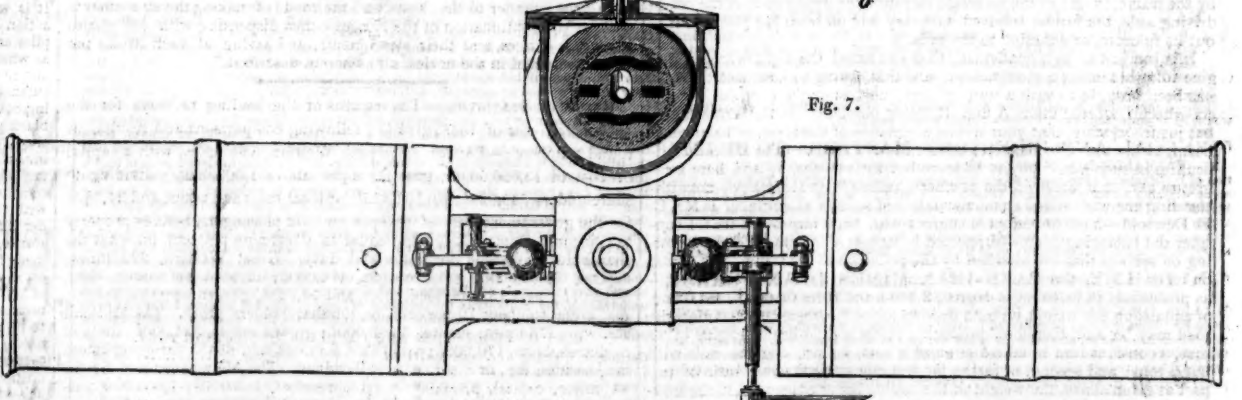
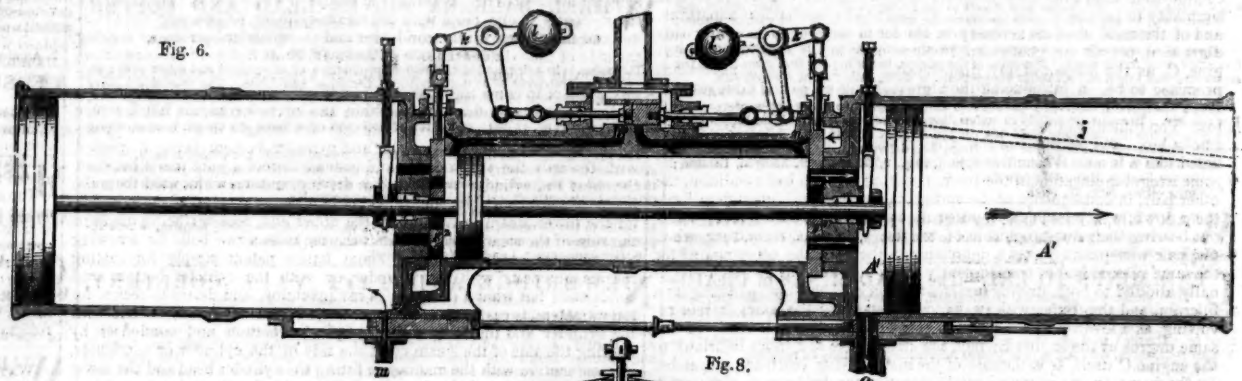
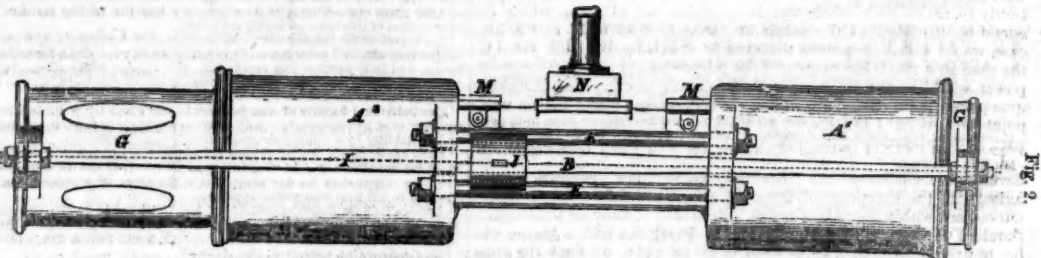
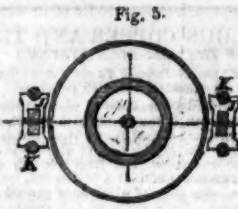
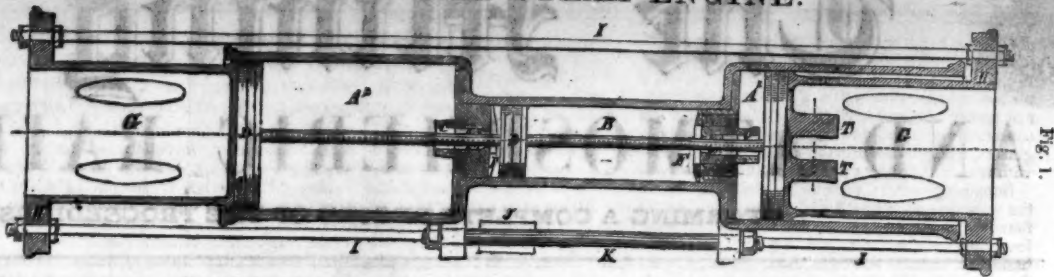
Fig. 8 a section of the casing of one of the communication valves—showing, in this case, the ports in the valve. An eccentric rod, *j*, is attached to the bell-crank levers, *k*, which have their balance weights, *l*, to counteract the weight of the communication valves; *n* are apertures for the admission of steam to the back of the communication valves, for the purpose of balancing them.

The action of the engine is as follows:—

Supposing the parts to be in the relative positions represented in figure 6, the space between the piston of the small cylinder and the valve, *F*, by which it communicates with the atmospheric cylinder, *A*, will be filled with the high-pressure steam of a preceding stroke; and the portion of the cylinder, *A*, between its piston and the valve of communication, *F*, will be filled with the steam of the second preceding stroke, but in an expanded state, and ready for condensation. The steam port, *a*, being now opened to admit high-pressure steam behind the piston of the small cylinder, and the communication valves, *F*, shut, and *F* opened, all the three pistons will be put in motion: the piston of the small cylinder will drive before it the high-pressure steam of the preceding stroke into the cylinder, *A*, where it will expand to such extent as the size of that cylinder admits of; while, at the same time, the atmosphere, acting against the vacuum produced in the cylinder, *A*, by the condensation of the steam of the second preceding stroke, assists the high-pressure steam in giving motion to the three pistons.

The same round of operations takes place on the return stroke—only that it is the cylinder, *A*, into which the high-pressure steam is now expanded, instead of the cylinder, *A*; and thus the working of the engine may go on without intermission—one stroke of the high-pressure cylinder being obtained every time the steam is admitted, combined with one atmosphere of pressure obtained by condensation.

The size to be given to the atmospheric cylinders must depend on two things combined—namely, the internal area of the small cylinder, and the pressure and temperature of the steam employed. For the relative proportions observed must be such, that each full charge of high-pressure steam, when passed into one of the atmospheric cylinders, shall just have room enough to expand until its pressure becomes lowered to that of the atmosphere, and its temperature to 212 degrees."—From the *Mechanics' Magazine*.



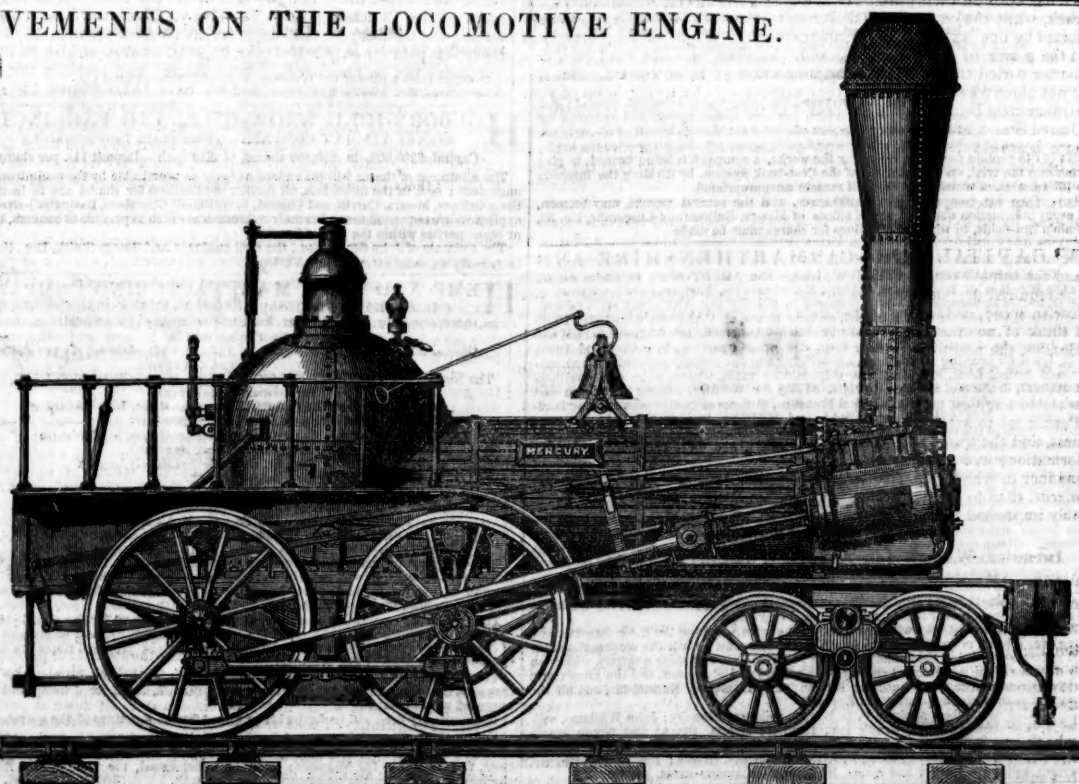
AMERICAN IMPROVEMENTS ON THE LOCOMOTIVE ENGINE.

LETTER FROM CHARLES MOERING, ESQ., ENGINEER, TO MESSRS. EASTWICK AND HARRISON, LOCOMOTIVE BUILDERS, PHILADELPHIA.

[Much interest attaching to various improvements now being introduced in the construction of locomotive engines, and the Number of the Journal in which a description of those manufactured by Messrs. Eastwick and Harrison, the celebrated American engineers, being out of print, we are induced to republish the article, and the accompanying illustration.]

GENTLEMEN,—In complying with your request, to give you my opinion about your locomotive engines, I feel called upon to state the grounds that make this opinion what it is. I do this in view of the interests of science, not intending to pass a mere encomium upon the productions of your establishment. Every engineer is, no doubt, conversant with the fact, that the power of a locomotive engine not only depends on the harmonious proportions of boiler and cylinders, and on the clever mechanical arrangement to work the pistons and transfer motion to the driving-wheels; but every engineer must be also aware of the importance of another fact—viz., the manner in which this power is made available, in order to draw a maximum load at a maximum speed on a railroad. In examining this point, we find that a fulcrum is required to enable the steam-power to act upon the weight, or the load to be drawn. This fulcrum in the locomotive engine is evidently the grip of the driving-wheels on the rails—meaning the friction between both, or adhesion, as it is technically called. Let a locomotive engine be ever so powerful, but take away the aforesaid friction, and the wheels will slip, the engine will draw nothing. This adhesion, derived from the pressure of the weight of the engine, must, therefore, bear a certain proportion to the latter. Its maximum will be obtained by throwing the largest—its minimum by placing the smallest—amount of the engine's weight on the driving-wheels. The minimum, however, has, at no time, been a desideratum, as the largest amount of adhesion is required for enabling an engine of a given power to draw a maximum load at a maximum speed. In the six-wheeled American engine (the true offspring of American mechanical talent, as possessing a fore truck, which affords a most opportune facility for turning curves), there is but one axle to bear the aforesaid proportion of weight, and this axle is the driving axle. On its position, therefore, depended the amount of weight to be made available for producing friction. As it was found impossible, as well as improper in practice, to place this single driving axle under the centre of gravity, for the purpose of equilibrating the entire weight of the engine, there remained but two other positions—viz., behind and close before the fire-box. To illustrate the effect in both cases, let us suppose two engines, A and B, each of 12 tons weight, in running order, with cylinders, boilers, and driving wheels, of the same dimensions, and performing the same amount of duty, on two roads of exactly the same kind. In the engine A, with the driving axle behind the fire-box, it was found that only half of its weight was brought into action for the purpose of producing friction, amounting, in this case, to 6 tons. In the engine B, with the driving axle before the fire-box, two-thirds were found available for the same purpose, equal to $2 \times 12 \div 3 = 8$ tons. The ratio of adhesion is, therefore, $A : B = 6 : 8$, meaning that the engine B possesses a surplus of 2 tons in its adhesive power; and, consequently, in its capability of drawing loads.

In further examining our subject, another question arises, concerning the effect of the given ratio of adhesion on the rails. In the engine A we have, as mentioned, 6 tons on the driving axle, and, therefore, 3 tons on each driving-wheel. In the engine B, however, we find 8 tons on the driving axle; and, consequently, 4 tons on each driving-wheel. The proportion of weight on the rails is, accordingly, $A : B = 3 : 4$. Supposing these two engines to run at the same speed, *S*, and assuming the stress by impact upon the rails to be represented approximately by the speed multiplied into the weight imposed upon each driving-wheel, then each line of rails would



be percussed by A, with $S \times 3 = 3S$, and by B, with $S \times 4 = 4S$. This gives a ratio of impact $A : B = 3S : 4S$, or $A : B = 3 : 4$; meaning, for the sake of practical illustration, that the engine B will ruin the rails, take them to be 38 lbs. per yard, after the lapse (say) of nine years; whilst the engine A will produce the same deterioration only after the space of 12 years—supposing the amount of traffic and other conditions to be the same in both cases. Although no actual observations of this nature have been made with regard to the rails, yet the average duration of the wrought-iron tires on the driving-wheels, proves the above proportion not to be an incorrect one. The duration of tires on engines, with the driving axle behind the fire-box, has been found to exceed the duration of those on engines with the driving axle before the fire-box; and, taking the latter to be nine months at an average, the duration of the first has been found to amount to from 12 to 14 months. Wrought-iron rails being manufactured in the same way as tires, it can be but a fair assumption, that the duration

of rails will a limit of the same proximate scale given in the above proportion of impact. This brief exposition, backed by the ratio of tractive power, $A : B = 6 : 8$, and by the proportion of duration, $A : B = 3 : 4$, makes it obvious why the diminution of impact in the engine B, possessing a superior power of traction, was found of such great importance, and has thus constantly occupied the attention of the American machinists and engineers. In pursuance of this notion, the eight-wheeled engine was started with two driving axles, one before and the other behind the fire-box.

Supposing such an engine C to weigh 12 tons, in running order, and of the same dimensions as A and B, the weight on the two driving axles was found to be also two-thirds, or 8 tons, yet pressing upon the road, on the four points of contact, only with $\frac{2}{3} = 2$ tons. The exact proportion of adhesion, or tractive power, is, therefore, $A : C = 6 : 8$, $B : C = 8 : 8$, $A : B : C = 6 : 8 : 8$. The ratio of impact, or deterioration of the rails, being $C : A = 2 : 3$, $C : B = 2 : 4$, $C : A : B = 2 : 3 : 4$. From this we may infer that rails lasting but nine years under the performance of the engine B, and 12 when travelled upon by the engine A, will not meet with their ulterior destruction before 18 years, when engines of the kind C, are running upon them under the aforementioned suppositions. I can, therefore, but applaud your resolution of building systematically no other engines but those with eight wheels—four driving and four truck wheels. However, I feel myself called upon to impress you with the advantages that must necessarily result when the number of driving wheels can be augmented to six or eight, without losing that beautiful characteristic of the American engine—viz.: the free vibrating truck, which in its office of piloting the engine along the track, I think invaluable for the American railroads, with their sharp turns and light superstructure. An engine D, with three, and an engine E, with four, driving axles, lending an opportunity to make their whole weight available for adhesion, which then would be that due to the maximum weight of 12 tons, in the given case, would certainly possess the greatest tractive power, and yet injure the road in a much less degree. The proportions of adhesion, or tractive power, would be the following ones—supposing in every case that the engine possesses sufficient power to slip her wheels in pulling against a fixed point— $A : B : C : D : E = 6 : 8 : 8 : 12 : 12$; and the proportions of impact, or deterioration of the rails, $B : A : C : D : E = 4 : 3 : 2 : 2 : 1\frac{1}{2}$.

I am aware of all the difficulties attending what I propose, but I feel, nevertheless, confident that "flexible coupling rods," permitting all the axles, with the exception of the main driver, to conform to the radii of curves, are within the pale of practical feasibility. Only on this condition should I think myself justified in preferring engines with a greater number of driving axles than two, were I even inclined to overlook the greater complication than such a mechanical arrangement must require. I reckon simplicity to be one of the cardinal virtues in any mechanical apparatus, and of the most absolute necessity in the locomotive engine. In this digression, permit me, gentlemen, to come back to the eight-wheeled engine, C, as the subject of my disquisition. Great as the improvement promised to be, in introducing the aforesaid engine, the advantages derived therefrom for the preservation of the rails, were, however, nearly lost. The difficulty consisted in the stiff connection of the fire-box, boiler, smoke-box, and pedestals of the driving wheels, with the frame, which acted like a lever. Whenever one pair of driving wheels was raised, by some irregular elevation in the track, resulting from its bad condition, the other pair, in consequence of the springs not acting quick enough to force them down, were momentarily lifted up by the frame, consequently without bearing their due proportion of weight; and, on the contrary, when one pair was passing over a depression in the road, the other again, for the same reason, had to sustain nearly the whole amount of weight originally allotted to both driving axles—the truck wheels always acting as a fulcrum, and the frame, with its fixed pedestals and the axles therein revolving, as a lever. This could not help injuring the road nearly in the same degree as the engine B; nay, the effects were still more injurious to the engine C itself, as in the case of the main driving axle being suspended by the frame, in one of the aforesaid elevations or depressions of the other driving axle, the former received its rotary motion from the pistons without its fulcrum, or adhesion to the rails.

It is but just to say, gentlemen, that you saved the eight-wheeled engine from becoming a mere notion; and that, owing to your exertions, it has been brought to such a state of perfection, as ought to make the old six-wheeler, of the kinds A and B, quite obsolete. It is, furthermore, but justice to state, that your special adaptation of the lever, or balancing-beam, to the use of locomotives upon railways, obviated the aforesaid difficulties in such a manner, as to leave but little to desire; and here I regret to say, that some of the northern railroads in Germany—notwithstanding the unqualified recommendation of so able an engineer as Mr. C. E. Detmold—have not adopted engines with your improvement. I consider the balancing-beam—supported in its centre by a vertical shaft, resting on springs that are attached by the pedestals to the frame, and stayed on its ends by two vertical pins abutting against the two driving axles—as possessing, in an eminent degree, the two indispensable qualities—first, of equalising the weight on both driving axles, in whatever condition the road may be, and, therefore, producing in an eight-wheeled engine of 12 tons, a constant and equal adhesion of 8 tons, yet pressing the rails with but 2 tons; and second, of furthermore diminishing the very ratio of impact as given above, the weight of the engine being suspended in the middle of the lever beam, causing it to fall only half the depth of any of the driving axles, in their passage over any short or sudden depression in the track, while the engines A and B must go down the whole depth, as supported by one axle, which, by increasing the height of fall, must add to the power of the percussion, and, therefore, ruin the road even in a shorter period than the proportionate number of 12 or 9 years. But this is not alone what distinguishes your engines—the balancing-beam of your arrangement being now used by nearly all the engine-builders of note in the United States, after having purchased the patent right from you, which at once bespeaks the great merit and usefulness of your improvement. It is, besides, the very simplicity of your engines, that must engage the attention of even the least observing. Instead of four eccentrics, four eccentric rods, four latches, and a complicated arrangement to put them in and out of gear, by an extra hand-lever—thus making three hand levers altogether—you have but two eccentrics, two eccentric rods, no latches, and a simple arrangement of the reversing valve; the whole to be handled by one and the same lever, and this, too, by moving it in exact accordance with the required movement of the engine. It is true that, in reversing, you lose in speed, as the lead of the slide no longer takes place; but this loss I think of no moment, as it only happens when the engine is backing. Besides, the position of your forcing-pumps is such as to prevent the freezing of the water—an advantage of great importance with locomotion in northern climes. Gentlemen, this is my candid opinion about your eight-wheeled engines, and you are welcome to make any use of this document. Permit me to avail myself of this opportunity to thank you for your readiness, and the frank and open way in which you satisfied my desire for information; and allow me to assure you, that the modest and ostentatious manner in which you spoke of your engines—trusting more to their own merits, than to puffing and boisterous recommendations—has most favourably impressed me with your own personal character. C. MOERING.

IMPROVED WHEELS AND AXLES FOR RAILWAY ENGINES AND CARRIAGES.—Mr. Edge, of Manchester, has recently patented some improvements applicable to the wheels and axles of engines, tenders, carriages, and waggons, to be used upon railways, and which are intended to be adopted in such cases, where the wheels are mounted upon revolving axles, and are designed to facilitate the transit of carriages over curves or other deviations upon the line of railway. In ordinary locomotive engines, tenders, carriages, or waggons, used on railways, the wheels are both "staked," keyed, or fastened upon their respective axles, and, consequently, both wheels revolve with the axles, whilst running; and, as is well known, in the event of passing over curves in the line, their action is not uniform, but subject to considerable friction and abrasion or "twist" against one side of the rails. This invention consists in so constructing wheels and axles as to obviate this imperfection. The improvement is effected by "staking" keying, or fixing only one wheel upon the revolving axis, instead of both, and leaving the other wheel loose upon its axis, and at liberty to turn, slip, or even remain for a time quiescent, when occasion may require.

BAD COUGHS AND COLDS CURED BY HOLLOWAY'S OINTMENT AND PILLS.—All coughs and colds affect more or less the lungs and other respiratory organs—thus few remedies have any power in their cure when of long standing, for the reasons that they do not reach the parts affected. Now, when there are any symptoms of asthma, or tightness of the chest, or difficulty of breathing, if night and morning Holloway's Ointment be well rubbed into the throat and chest, all fever and inflammation will be removed, the breathing becomes free, and the cough ceases, providing a few doses of Holloway's Pills be taken according to printed directions. Sold by all druggists; and at Professor Holloway's establishment, 244, Strand, London.

AMERICAN IMPROVEMENTS IN THE STEAM-ENGINE.

The last number of the *Journal of the Franklin Institute* contains the following descriptions of three patents, recently obtained by Mr. F. E. Sickels, of New York, for improvements connected with the steam-engine.

1. *Combining and Connecting Cranks and Crank-Pins of Steam-Engines.*—Claim: "What I claim as my invention, and desire to secure by letters patent, is connecting a crank-pin with two cranks, by means of turning and sliding joints combined, whether the pin be made to slide in both cranks, or only in one, so as to equalise the strain of the engine on each crank, and allow them to move and compensate for any error in the relative position of the crank-shafts, as herein described."

2. *Operating the Drop Cut-off Valves of Steam-Engines.*—The patentee says:—"By the method now practised of operating the drop cut-off valve, the motion is derived from the lifter, which approaches its state of rest as the piston of the engine approaches the middle of its stroke, or its maximum velocity, and the valve is tripped by the same motion which lifts it, so that there must be very great nicety in the adjustment to regulate the extent of the cut-off at about the half stroke. The object of my invention is to remedy this, and its principle or character consists in tripping the valve by a motion independent of the motion of the lifting-rod or rods. And, also, in combining the various parts in such manner as to regulate the cut-off with accuracy during the action of the engine, by connecting the two shafts that trip the two cut-off valves end to end, by means of adjustable spring arms that take into, and are, when set, held in the teeth of a sector, which vibrates on the axis of motion of the shafts, and receives its vibratory motion from the eccentric—which spring arms may be shifted in the teeth of the sector, brought nearer to, or farther from, each other,—and thus cut off at a less or greater portion of the stroke."

3. *Casting the Steam-Chests with the Cylinder, and with the Cylinder Bottom and Condenser.*—The patentee says:—"In forming the connection of a steam cylinder with the steam chests of puppet-valve engines, it has long been known to engineers, that the closeness of this connection is important in an economical point of view, not only on account of the weight and cost of materials employed in making a long connection, but because all the steam contained in this connection is condensed, or otherwise lost, at each stroke of the engine; and hence various devices have been resorted to by engineers to surmount this difficulty—the steam chest has been variously arranged and located; but still all these devices have presented a large area between the chest and the cylinder,—for the steam chest being cast separate from the cylinder, sufficient room must be left to form the connection by bolted flanges, which occupy much room. To remedy these evils is the object of my invention, the nature of which consists in casting the steam-chests in one piece with the steam cylinder, or one with the cylinder and the other with the condenser and the cylinder bottom, by making the side of the cylinder the side of the steam chest, and so of the condenser; and also in so forming and adapting the appendages of these parts as to enable them to come together, and to unite the cylinder head with the cylinder, and the cylinder bottom within the narrow compass left between the steam chest and cylinder, where they are brought in such close proximity. The flange on the cylinder and cylinder bottom being dispensed with towards the steam chest, and instead thereof a joint made between the chest and cylinder by packing or driving, and screws inserted from the inside of the steam chest and screwing into the solid metal of the cylinder, for the lower steam chest, and for the upper end, recesses being made in the side of the steam chest to admit the requisite screw bolts for screwing the cylinder head. I do not claim letters patent simply for casting the steam chests with the cylinder, or with the cylinder bottom and condenser; but what I do claim as my invention, and desire to secure by letters patent, is casting the steam chests with the cylinder, or one with the cylinder and the other with the cylinder bottom and condenser, by making the side of the steam chest the side of the cylinder or condenser, in combination with the manner of fitting the cylinder head and the lower end of the cylinder to the chests, and the mode of making the attachments without the continuation of the flanges—thus dispensing with the nozzles and nozzle flanges, and their attachments, and saving, at each stroke the steam contained in the nozzles, all as herein described."

RAILWAY STATISTICS.—The returns of the leading railways for the second half-year of 1846, give the following comparisons and results, in round numbers:—London and North Western, 350 miles, with a capital or cost of 13,000,000*l.*; gross receipts, above 1,000,000*l.*; dividing to shareholders, 543,929*l.*; paid 21,425*l.* for local rates and taxes, and 24,582*l.* for the government duty of five per cent. on passengers, besides property tax, income, stamps, &c., being equal to about nine per cent. on what the shareholders divided for rates and duty. Great Western, 222 miles; capital, 8,000,000*l.*; gross receipts, 496,000*l.*; divided to shareholders, 301,807*l.*; paid 15,030*l.* local rates, and 14,748*l.* government tax, besides, &c., equal to about 10 per cent. on the shareholders' profit. The Midland Railway, 178 miles; capital, 7,250,000*l.*; gross receipts, 324,000*l.*; divided to shareholders, 170,200*l.*; paid 7150*l.* for rates, and 6645*l.* for government tax, besides, &c., or 8 per cent. on dividend. The Manchester and Leeds, 84 miles; capital, 3,750,000*l.*; gross receipts, 153,000*l.*; 1,000,000 passengers; divided among shareholders, 86,470*l.*, after paying 4141*l.* local rates, and 3464*l.* duty, besides, &c., or 10 per cent. On a rough estimate of the 12 leading English railways (those we have enumerated among the number) of 1250 miles (or, at 10 acres per mile, 12,500 acres) there was paid for only half a year, 75,951*l.* local rates, and 73,177*l.* Government tax on passengers, besides income tax, property tax, stamps, &c. Estimate that for a year, and we have 152,000*l.* and 146,000*l.* for these 12 railways, paid in reality by the public, to local and general taxation. Estimating the present railways at double that length of miles, gives 2500 miles, or 25,000 acres, paying about 96 times more than agricultural land, mills, or other property, which pay as many threepences, as railways do pounds for the same extent of land to the local taxes, &c.

ECONOMICAL APPLICATION OF STEAM.—We have, on frequent occasions, adverted to the application of steam to various purposes; and, while many naturally take an interest in its progressive advancement, whether as regards locomotion, or as directed to the powers of the steam-engine, yet we can well imagine that there are many who will feel an interest in the following brief remarks we may make, as regards its use as applied to domestic economy, whether considered with regard to the saving of time or cost—the one, indeed, being with us synonymous with the other. Having had the opportunity of inspecting some steam apparatus, most simple in itself, which has for its object the generation of heat, which may be applied to ovens, conservatories, baths, drying plates, evaporating pans, and last, not least, public washing establishments—which, it is gratifying to find, are daily progressing in public estimation, and receiving its support—we will at once give the result of our observations. The apparatus, as we have observed, is simple in itself, and consists of a small stove, or furnace inclosed, around the interior of which are placed pipes or tubes containing water, which are thus heated; and, as the steam is emitted by the pipes attached, are supplied, so as to give the required quantity of heating power. The small furnace we inspected was $2\frac{1}{2}$ feet by 1 $\frac{1}{2}$ foot square with 70 feet of pipe, through which the water passes, and is emitted in the form of steam, passing to any desired height—in the present instance 10 feet—when it communicates with the ovens, or tanks, or plates, as may be required, to which the heat is to be given—which is composed, in the former case, of an ordinary brick chamber, with metallic floor, or plate, 2 inches in thickness—the size, in the instance cited, being 2 $\frac{1}{2}$ feet square; this plate, which is of cast-iron, is perforated by tubes of five-eighths of an inch, through which the steam passes, of which there are 16—the steam thus passing through returning by a downcast pipe to the boiler, or, rather pipes, whereby it is heated. The quantity of water so employed is (say) 18 gallons to 20 gallons—the evaporation of which by the process may be set down at one quart per diem. The quantity of coke used in the 24 hours is about four bushels—the cost of which may be taken at 1*s.* The heat required is from 400° to 450°. It will be seen that the heat acquired is about two-thirds that necessary for the admission of hot air into a blast furnace; and the effect produced may be gathered from the facts, that 40 gallons of water have been boiled, by being placed on a plate through the tubes or bores in which the steam passed through in 6 $\frac{1}{2}$ minutes; and, moreover, that 30 gallons of water was evaporated from a tank 5 ft. by 2 $\frac{1}{2}$ ft., with 5 in. depth. The economy, however, appears not to be confined to time; and, as we might naturally expect, the *L. & C.* question forms an important point—for while coke, amounting to 1*s.*, is ample for the purpose of keeping an oven, or other apparatus, in working order for 24 hours, without the slightest interruption, no less a quantity of coal than 1 $\frac{1}{2}$ cwt., at a cost of 2*s.*, would be requisite; while, from the peculiarity of the construction of the furnace, and the tributary pipes or vessels, at least 50 per cent. of time is gained, and hence a saving of labour in such proportion. The invention, which is patented, appears to us to be in its infancy—and, doubtless, will be applied with even a greater regard to economy of time and expenditure, and also to other purposes than those at present contemplated by the patentees, which, however, are numerous.

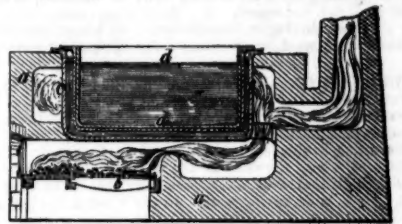
IMPROVEMENTS IN COATING METALS, TO PREVENT OXIDATION.

[Specification of patent granted to Andrew Smith, of Princes-street, in the county Middlesex, engineer, for improvements in coating or covering metals, for the purpose preventing oxidation.]—*Newton's London Journal.*

This invention of improvements in coating or covering metals, for the purpose of preventing oxidation, relates to that process of coating metals, whereby the articles to be preserved by oxidation are plunged into a bath of molten zinc and there receive a coating of that metal.

The improvements consist in a new mode of transmitting heat (from the furnace employed for melting the metal) to the vessel which contains the zinc. According to the ordinary method of melting the zinc, and keeping it in a molten state to receive the articles which are required to be coated, the flame of the fire is made to play round the sides only of the pan or vessel containing the zinc; for the refuse particles of the zinc, falling to the bottom of the pan, soon form a thicker crustation thereon: the result, therefore, of allowing the flame to play upon the under surface of the pan, would be, to quickly burn out the bottom. Besides the great loss of heat which is thus occasioned, the direct action of the fire upon the iron pan, or the galvanic action of the zinc, quickly destroys that vessel, and the zinc contained therein is frequently injured by being burnt. To remedy these defects, and allow of the zincing process being carried on with greater precision and economy, the inventor cuts off the connection of the fire, and of the zinc, with the pan containing the zinc; by which arrangement, the galvanic, or electric action, hitherto so destructive to the vessel holding the fluid metal, as also to the metal itself, is prevented, and thus the vessel will be preserved, in a good state, for a much longer period.

The subjoined figure represents, in vertical section, the apparatus for melting



zinc, and preserving it in a molten state, at a uniform temperature of 800° Fahr., to receive the articles to be coated. *a*, are the walls, and *b*, the fire bars of the furnace; *c*, is a large cast or wrought-iron pan or vessel, provided on its upper edge with a flange, by which it is supported in the brickwork; the bottom and sides of this pan, *c*, are surrounded by the furnace flue or flues, and within the pan a smaller pan *d*, of cast or wrought-iron, is suspended by a flange provided on its upper edge. A space is thus left between the sides and bottom of the two vessels, into which space a bath, composed of lead alone, or of lead combined with tin, is placed, for the purpose of receiving the heat of the fire, and transmitting it to the zinc. On the inner face of the pan *d*, is a coating of fire-clay or fire-brick, which is intended to prevent the action of the zinc upon the pan *d*. The space between the two vessels, *c*, *d*, may vary in width; but, from experience, it has been found that, when the lead or tin forms a lining of about 1 $\frac{1}{2}$ in. in thickness, between the two vessels, the heat of the fire will be readily communicated to the inner vessel, and thence to the zinc; and this body of molten lead or tin will suffice to keep up the required even temperature (transmitted from the fire) to the zinc bath.

The application of zinc to the surface of articles constructed of metals forming no part of this invention, it was considered unnecessary to describe the mode of treating the metal articles preparatory to receiving the coating of zinc, such treatment being well-known and generally employed in preparing the articles for various branches in the industrial arts.

The patentee claims the employment of a bath of lead or tin, or any suitable composition or medium that melts at a lower degree of heat than zinc, by which means the heat from the fire of the furnace is taken up, and transmitted to the receptacle containing zinc, for the purpose above set forth.

WATERPROOFING FOR RAILWAY PURPOSES, WITH VEGETABLE BLACK.—It is well known that carbon is a substance less liable to change, from the action of time, than almost any other. We have proofs of this in fact, that piles have been found, after immersion for ages in rivers and morasses, as sound as when placed there, in consequence of having their outer surfaces charred; and in the beauty of the characters traced on the manuscripts discovered at Herculaneum, which are as perfect now as when written, and of which the colouring matter is ascertained to be carbon. At the present day, the most useful black pigments we have are modifications of carbon, more or less impure, and they are principally obtained by the condensation of smoke, generated by the imperfect combustion of substances containing large quantities of carbon—as tar, oil, rosin, and the like. The carboniferous products of these are, however, considerably contaminated by foreign matter, which is gasified, and passes over with the smoke. These impurities injure the durability of the carbon, and render it needful, in making it into paint, to add sugar of lead, or some similar substance, to act as a drier, and cause the paint to harden. In the case of carbon made from wood—i.e., wood charcoal—the process of carbonising being carried on at a red heat, the impurities are driven off, and a nearly pure article remains, of an indestructible nature and brilliant black appearance; but hitherto no means have been known of reducing this charcoal to a powder, sufficiently fine to be made available for the purposes for which the smoke blacks have been used. The mode of doing so has now, however, been made the subject of a patent by Mr. Jones, of Chester, and the means he employs are these:—The great obstacle to minute division of the particles of charcoal in the ordinary mills, arises from the elasticity of the material operated upon, and from the portions reduced to a sufficient state of fineness preventing the abrasion of the remainder; and no sieve is sufficiently fine to make the separation. Mr. Jones grinds his charcoal in a common mill, but causes a gentle current of air to pass through it, by which means, as soon as the particles become fine enough to float on that current, they are carried away by it, and are allowed to deposit in a large chamber prepared to receive them. It is evident that the fineness of the powder thus obtained will be in inverse proportion to the strength of the current of the air, and thus any needful degree of minuteness in the atoms may be procured. The purity and fineness of the powder so prepared is such, that it only needs stirring into boiled oil to make at once a brilliant and durable paint.—*Railway Register.*

NOVEL PROJECT IN CONNECTION WITH RAILWAYS.—A combination, or association, of a singular and original character, and embracing various objects of interest, has lately been conceived, and, as we understand, is nearly complete in its construction and arrangements. To make railway touring so pleasant, that the traveller may be conveyed anywhere, however distant the point, with the slightest possible care on his mind by the way, or the necessity of troubling himself about any provision for the day or the morrow, the association referred to has been formed. The members, it is said, consist exclusively of hotel-keepers; and the servants of their respective establishments, as one of the rules, as reported, is that no servant shall be employed who shall not be interested for a certain number of shares. The company is to be governed by a board of management, composed equally of eight French and eight English directors. Messrs. Horne and Chaplin, and Mr. Tyssen (a large landed proprietor, and owner of the Euston-square hotels), are said to be leading members and patrons of the undertaking. By the plan, as proposed, the passenger, from whatever point embraced, has only to state his object; and make the necessary deposit of the sum he may require, or mean to expend, and all the details of his journey are arranged for him. His place by railways and by steamers is secured, and fares paid. His passports taken out *en route*, wherever necessary, and his luggage taken care of, passed, readjusted whenever requisite, under the superintendence of special agents, to whom his circular note is sufficient index, supposing no counterpart of advice. His quarters are provided wherever he may choose to stop at the hotel of correspondence. His bills are paid, and what money he may want furnished to him. All these conveniences and ease are secured to him, on presentation of the circular note of credit issued to him at the place of departure. The check upon the circular bill of credit is kept, of course, by a regular mutual course of communication between all points, ending with the board of management in chief, as well as, probably, by a series of endorsements for moneys paid and advanced on account at each place of stoppage. Such, as reported, are the outlines of this undertaking, by which a system of paper values promise to be vastly extended (not introduced) over great part of Europe, where upon the lesser scale, of bank circular notes, it indeed already circulates, without offering, however, anything like the accommodation, or being available for the uses and objects here held out. The necessity for specie, or hard money, will be materially diminished, by the fact, that people may traverse one half of Europe freely, with scarcely the obligation of carrying a piece of metallic money, or a bank-note. It is not improbable that the conveyance of packages and parcels may be mutually arranged for between the members of the company, by a somewhat similar system of exchanging of orders, to be liquidated by balances as at the banker's clearing-house, where 100*l.* coin or notes, is found equal to settle or balance for an aggregate mass of, perhaps, 50,000*l.* of bills variously held for parties for and against each other.

THE ELECTRIC TELEGRAPH ON THE NORTH WESTERN.—It has been determined to carry the electric telegraph from the terminus at Euston-square to Liverpool and Manchester. The wires have been already placed as far as Watford. It is also intended to complete the telegraph from Manchester to Liverpool. The cost of laying down the wires, &c., amounts to 140*l.* per mile. When the apparatus is complete the entire distance to Liverpool, wires are to be laid down from the terminus at Euston-square to the Royal Exchange.

It is calculated that 37,500 tons of china clay are annually shipped from the neighbourhood of Poole, Dorsetshire, to the Potteries, and that the value of this export must amount to nearly 50,000*l.*

Mining Correspondence.

ENGLISH MINES.

BOTALLACK: Nov. 17.—To labour cost	£1288 15 4
Merchants' bills	828 16 8
Total	£1914 11 0
By balance in pursuer's hands last account	£247 5 9
Copper sold, less dues	359 18 2
Tin sold, less dues	413 6 2
Sundries	1 4 0
Balance against adventurers	£ 612 17 8

Since the meeting, a part of the reserved tin has been sold at 40s. per ton, advance, to pay off the balance: leaving 1400l. in stock to the end of August. There is a discovery of ore in the 125 fm. level end, 3 ft. wide, from which, in a few days, 30 tons of copper ore were broken. [Referring to this discovery, a correspondent remarks, that "should this discovery turn out as is anticipated and fervently hoped by the adventurers, and relied upon by parties well acquainted with mining, there can be no doubt but that this extraordinary mine will yield as large a profit as she has before done, shortly after her resources were said to have been exhausted."]

BARRISTOWN.—The lode in the 24 fm. level end, west of engine-shaft, is at present producing good stones of ore. The lode in the 18 fm. level end west is producing about 1 ton per fm.; the 18 fm. level end, east of flat-rod shaft, is producing about 1 ton per fm. The 12 fm. level end west is producing three-quarters of a ton per fm.; the adit end east is producing stones of ore (lode small). The tribute pitches are looking well: no alteration in any other part of the mine since my last report. We like the appearance very much of the ground in the shaft sinking in Maudlintown; we intend this to communicate with the 18 fm. level west, about 15 fms. before the present end.—T. ANGOVE: Nov. 28.

BEDFORD UNITED.—At Wheal Marquis, the lode in the 80 fm. level east is 18 in. wide, composed of spar, munda, and ore, saving work, a very kindly lode; there has been no lode taken down in the 70 fm. level east since last report; Crew's winze in this level has been holed to the 80 fm. level; the lode in Mitchell's winze, in this level, is 18 in. wide, saving work. The lode in the 58 fm. level east is just the same as last reported. At Fuzzehill, the lode in Harrison's shaft is 20 in. wide, a very promising lode. The lode in the 38 north and south, is 2 1/2 ft. wide, saving work. In the 30 south, the lode is 18 in. wide, work of a good quality.—B. ROBERTS: Nov. 30.

CALLINGTON.—Johnson's engine-shaft is divided, and cased to the 125 fm. level—the ground in the cross-cut is rather hard for driving. In the 112 fm. level, driving north, we are opening tribute ground; in the south end, the lode is much disordered and irregular, producing silver-lead ores; in the winze, sinking upon this level, the lode has not been taken down. In the 100 fm. level, driving south, the lode is looking more promising, has not been taken down; the ground is hard for driving; in the north end, the lode is small, though producing good work; the back will set at a moderate tribute. In the 90 fm. level, both north and south, we are opening ground that will work at a moderate tribute. In the 80 fm. level the lode continues to produce silver-lead ores. At the north mine we have fixed a plunger lift at the 100 fm. level—no ground has been opened here since last report. At the 90 fm. level south, in driving through the copper lode, we have broken some good stones of copper ores—have not yet got the lead lode to the south of the same; in the north end the lode has not been taken down. In the 80 fm. level the lode is producing silver-lead ores. In the 40 fm. level north we have cut the Kelly Bray lode, and suppose this to be the same we have been sinking on adjoining Kelly Bray estate—this point is 31 fms. in an easterly direction from the north engine-shaft; here we have commenced driving east in favourable ground, calculating 50 fms. will put us beyond the great cross-course. We have not yet finished dressing October ores—expect to do so, and sample about the same quantity as last parcel, in the course of two or three days.—J. T. PHILLIPS: Nov. 30.

COOK'S KITCHEN.—In Chapple's lode, we have finished cutting the plat at the 180 fm. level, and have sunk the shaft about 5 fms. under this level, where the lode is 7 ft. wide, and producing good stones of tin; in the 180 fm. level, west of Chapple's shaft, the part of the lode on which we are driving is 3 ft. wide, and worth 8l. per fm. In the winze, sinking under the 170 fm. level, the flookan part of the lode, which we are carrying, is 3 ft. wide, and worth about 5l. per fm., but the whole lode is more than 10 ft. wide, and most probably worth from 40l. to 50l. per fm.; we have about 6 ft. more to communicate this winze with the 180 fm. level, when the ground, through which it has been sunk, may be set at about 4s. in the 1l. In the 170 fm. level west the part of the lode, on which we are driving, is about 5 ft. wide, and worth 15l. per fm. In the winze, sinking under the 160 fm. level, which is now down about 6 fms., the part of the lode, which we are carrying, is 3 ft. wide, and worth 20l. per fm.—we expect this winze will be holed in about 6 weeks, when the ground, through which it is sunk, will be set at a low tribute, say about 3s. in the 1l. In the winze, under the 148 fm. level, the part of the lode, on which we are sinking, is 4 ft. wide, and worth about 8l. per fm.—the whole size of the lode is however, much greater and more valuable. In the 148 fm. level east the ground is favourable, and we have about 3 fms. more to communicate it with the new east shaft. New east shaft is now down about 8 ft. under the 148 fm. level, where the lode is 4 ft. wide, and unproductive. In Eady's lode, in the 92 fm. level, west of new east shaft, the lode is 1 ft. wide, and worth 5l. per fm. In North Tincroft lode, in the 80 fm. level, east of flat-rod shaft, the lode is about 3 ft. wide, and very poor. In the cross-cut, south from Dunkin's lode, at the 160 fm. level, there has been but little done since last reported, the men having been employed about other work. There is nothing particular worthy of notice in the tribute department. The winders, from the 160 to the 170 fm. levels, and from the 170 to the 180 fm. levels, not having been yet holed, we have been as yet unable to avail ourselves of the good tin ground which there is between these levels; but, after our next survey day, a great deal of this will be in active working—and the succeeding sale of tin will, I have no doubt, be considerably increased thereby.—JOSEPH VIVIAN: Nov. 30.

CUBERT SILVER-LEAD.—We have now finished the pay for October, and the setting for December; annexed you have the setting-report, by which you will observe, we have 11 pitches working, employing 33 men, varying in their tributes from 2l. 6s. to 6l. per ton. The engine-shaft is sunk within 2 ft. to the 35 fm. level, which we hope to complete next week. At the 25 fm. level, driving east on the Trebiken lode, this end is still unproductive, and the lode very small; at the same level west the lode has very recently improved, it being now 18 in. wide, yielding rich stones of lead: a kindly level. At the 15 fm. going west the lode is 8 in. wide, 4 in. of which is rich work for lead—a very promising end; the same may be said of the level driving east, also promising. We consider our next sampling for the two months will be from 50 to 55 tons.—R. ROWE.

DEVON AND COURTNEY CONSOLS.—In the deep adit, driving east, on the lode from Darrick shaft, by 4 men, the ground is hard, the average of driving is from 3 fms. to 20 ft. per month; there is a change in the appearance of the stratum (from a hard white to a blue killas of the same kind as coming from our engine-shaft), which shows that the end is getting out of the tor; the lode is from 18 in. to 2 ft. wide, composed of munda, peach, and ore; but at present not worth saving; in the shallow adit, driving east on the north lode by three men, and three boys, ground favourable, the men will drive from 10 to 12 fms. this month; the lode is 2 1/2 ft. wide, composed of lead, copper, flookan, white iron, and gossan; the last fathom has produced 3 or 4 cwt. of lead, and some good stones of copper; the lode will now produce from 6 to 8 cwt. of lead per fm., which will pay for driving; I judge from the present appearance (as the end is not more than 10 fms. below surface) that we shall have a profitable concern; I have driven a shallow level around the shaft on the north lode—it came in 4 fms. deep, which will take up a great quantity of surface water. Our tributers are getting on as fast as possible with the new work for the rods for the above shafts, but I have not been able to get a carpenter to make the bobs, &c.; but expecting one here on Monday, I hope to complete the work in about a fortnight. Our sumpmen have taken a bargain to sink the engine-shaft 10 fms. to divide and case the same, and put in footway, and do all other work connected with the sinking of the above mentioned, for the sum of 105l.; we cut a branch in the shaft this week, underlying north towards the lode, about 4 in. wide, producing good stones of copper, showing good indications that we may expect ore when the lode is cut.—J. JOH: Nov. 28.

EAST CROWDALE.—In the past week, we have broken some stones of ore in the 80 fm. level east; the lode in the end at present is 2 ft. wide, composed of spar, munda, capel, a small quantity of flookan, and at times good spots of ore; the ground in the end is a great deal harder, and it appears the greatest part of the ore risen by the old men was from ground that was close and hard. The stipes east and west of the winze, below the 20 fm. level east, still continues ore; we have not broken much in the eastern end the past week, as we have been stopping a piece of dead ground, in order to get the ore ground to advantage; the lode in the western end is 2 ft. wide, composed of spar, munda, capel, iron, and good stones of ore. We have commenced driving south on a very healthy looking cross-course, at the 20 fm. level, composed of priam, spar, munda, and flookan, and expect to cut another lode in about 8 fms. driving. Our new engine-shaft is down 23 fms. 3 ft. from the surface.—S. SPRAGUE: S. PAUL: Nov. 28.

EAST TAMAR CONSOLS.—At Whitson, the men in Hitchens's shaft have met with a hard fluor ground at present; but I hope it will not hold far, as it often changes. The 54 fm. level, north and south, the lode is 2 ft. wide, good saving work. The 46 south is 18 in. wide, composed of capel, spar, and spots of ore in places; the lode in the rise, in this level, is 2 1/2 ft. wide, good saving work. At Wheal Taviatock, the lode in the 47 fm. level east, is 3 ft. wide, composed chiefly of munda and ore; and in this level west, the lode is 18 in. wide, producing a little saving work, altogether very promising. There is no alteration in the 35 fm. level since last report. The lode in the south engine-shaft

is 6 ft. wide, producing good stones of ore, a very promising lode; the adit end is much the same. We weighed at Morwelham, on Friday last, Sept. ores, 93 tons 15 cwt., and sampled Oct. ores, computed 108 tons.—J. PHILLIPS: Dec. 1.

GREAT MICHELL CONSOLS.—The ground in the engine-shaft continues favourable for sinking. In the 22 fm. level east, the lode continues to look promising, being composed of gossan of the finest description, with munda, and rich spots of yellow copper ore; in this level west, the lode is composed of gossan, spar, and munda, a very promising lode.—T. RICHARDS: Dec. 1.

GUNNIS LAKE.—There has been but little done in Bailey's engine-shaft in the past week, the sumpmen having been engaged taking up, and fixing lift at the 12 fm. level—the lodes without alteration. In the 12 fm. level, east and west, there has been no lode taken down.—P. S.—Since writing the above, the working in the 12 fm. level east have come in on slate, and the lode is much improved, being 2 ft. wide, composed of peach, gossan, and black and yellow ore, good saving work.—W. RICHARDS: Dec. 1.

HAWKMOOR.—The lode in the 15 fm. level, east of Hitchens's shaft, is about 2 1/2 ft. wide, producing some saving work.—P. RICHARDS: Dec. 1.

HOLMBUSH.—The shaftmen are still engaged in stopping the piece of ground from the 110 to the 120 fm. level, west of the great cross-course—it is 15 in. wide, and worth 20l. per fm.; in the same level, driving north to hole, the ground is set at 8l. 8s. per fm.; within the last 6 ft. we have intersected four small branches of copper and munda, all of which is underlying south. In the 120 fm. level, driving south towards this end, from the winze, the ground is much harder, being set at 14l. per fm. The lode in the rise, above the 110 fm. level, on the north part, is 12 in. wide, composed of munda and stones of ore; the lode in the 110 fm. level, west of the lead lode, is 10 in. wide, and worth 7l. per fm.; we are driving east from this part, but have not driven far enough to intersect the lead course; the lode in the winze, sinking below the 110 fm. level (below the great cross-course and the lead lode), is 1 ft. wide, and worth 9l. per fm.; the lode in the 100 fm. level south is 2 1/2 ft. wide, composed of flookan, spar, and stones of lead; the lead pitches in the back of this level are just the same as last reported on. We weighed at Calstock quay, on Friday last, October ores, 106 tons 3 cwt.; and sampled Nov. ores, computed 96 tons.—W. LEAN: Dec. 1.

LANIVET CONSOLS.—The leader part of the lode in the 80 fm. level, east of Elizabeth's shaft, is 3 ft. wide, producing saving work, and opening ground that will set at a moderate tribute; in the 80 west the leader part of the lode is 2 ft. wide, producing occasionally some good stones of ore; this level having drained the 60 fm. level west, to Baker's shaft, we have lately set a pitch in that level, which has much improved since the commencement of sinking below that level; this is about 25 fms. west of the present end in the 80, and, from its present appearance, is likely to make a good bunch of ore; and, as the 80 advances, we shall, doubtless, be able to sink winzes many fathoms below the 60, and also resume the sinking Baker's shaft, which will facilitate the working, and is very likely to be profitable. We have not yet cut through the lode in the 40, although we have cut 5 fms. into it; the general appearance has been poor, although occasionally producing some good stones of ore. In the 30 fm. level east the leader part of the lode is 3 ft. wide, producing some good ore.—H. WILLIAMS: W. MICHELL.

LEWIS.—At Wheal Nutt engine-shaft, in the 60 fm. level end east, since last reported, we have driven through the flookan east of the same; we have a very promising lode 8 ft. wide, worth 8l. per fm. for tin, now opening at 27s. per fm.; the lode in the 60 west, is 2 1/2 ft. wide, saving work for tin. The lode in the 50 east (east of the flookan) is 7 ft. wide, worth 40l. per fm. for tin, opening at 30s. per fm.; we are extending the cross-cut south at the 50 west of engine-shaft, ground hard. The lode in the 40 fm. level end east is 2 1/2 ft. wide, worth 6l. per fm. for tin; the 40 west on south branch is suspended, in order to put the men to sink a winze from that level to the 50 for a better ventilation. The lode in the 30 fm. level end east is 1 ft. wide, saving work for tin, much improved since our last report; the lode in the 30 west on south branch is 10 in. wide, set at 11s. in 1l. for saving the tin; the back and bottom of this level is now being worked at an average of 11s. The lode in the 20 west, on Scadden's branch, is 6 in. wide, set at 12s. in 1l. for saving the copper ore. We expect to work our stamping machine at, or about, the 3d or 4th of December. On the 25th inst., we sold 8 1/2 tons of timber, 467l. 8s. 7d.—S. S. NOELL: Nov. 28.

MENDIP HILLS.—Since my last report, I have removed the men from the bottom of the 20 fm. level, north of Somers's shaft, to drive the 38 fm. level, south of Stainsby's; the ground is favourable for driving—price 40s. per fm.; my object for driving this end is to get under a large cavern, we have gone down in the level above; below these caverns large deposits of lead are often found in lime rock formation—to accomplish which, we have to drive about 20 fms. The appearance of the lode in Stainsby's shaft continues precisely the same, composed of quartz, dark coloured flookan, with spots of lead at times, and is sunk 6 fms. 3 ft. below the 38 fm. level; present price for sinking 8l. per fm.—F. C. HARRUP: Nov. 30.

NORTH WHEAL CAMEL.—Since the meeting on the 22d of September last, the shaft on the north lode has been sunk 5 fms. 4 ft. 5 in.; the lode averaging in width about 2 ft., composed of gossan, munda, spar, and rich spots of black and yellow copper ore; a more promising lode I have never seen at the present depth, which is now altogether 18 fms. 1 ft. 6 in. below the surface; the water has increased during the late heavy rains, so as to prevent further sinking with win barrels; it is necessary for the further prosecution of this lode, that a wheel, rods, bobs, pumps, &c., should be had, which will cost, with buildings, &c., for the same, about 400l.; the time required for carrying out this work will take about three months; the excavations of lobby, wheel-pit, &c., are now in progress, and will be completed in about a fortnight from this time, should the weather prove favourable; the houses alluded to in my last report are nearly finished, which will be found convenient and well adapted for carrying out the company's works for years to come.—T. RICHARDS: Nov. 24.

PENTUAN WHEAL MARY.—Since my last report, the ground in the adit end, south-west, has greatly improved—having cut several large branches, chiefly composed of quartz, with some spots of copper ore; to the east, in the adjoining sett, our main lode has been discovered, from which the parties who are engaged thereon have taken large lumps of copper ore; to the west, we have a large north and south lode, which presents great promise—it being about 100 fms. in advance of our present end; to the north, we have a large oval course, with a parallel lode running therewith, presenting very favourable appearances. We are driving our adit level, with all possible speed, in a direction to cut the whole of the lodes in the sett.—J. CHYNSWETH: Dec. 2.

SILVER VALLEY.—The engine-shaft is sunk 9 ft. below the 40 fm. level, in this level east the lode continues large, with spots of tin and copper ore in places, of good quality. The winze from the 30 is communicated to this level, and we are now driving the western end, but have not taken down the lode. The lode in the 30 fm. level west is 2 1/2 ft. wide, producing some tinwork, and presents a more favourable appearance since last report; we are sinking a winze from the 20 to this level, for ventilation and advantage in stopping the tin ground; the lode is 4 ft. wide, containing a little tin, but not rich. The different pitches and stipes, upon the whole, are looking better than for some time past. At the silver mine, the men at the 10 fm. level west have been busily engaged in securing the western shaft, and putting in casing, in order for drawing away the stuff from the end, which will save some expense in wheeling; there has been, in consequence, but little done in the end, at this level, is 2 ft. wide, composed of flookan, carbonate of iron and quartz, with small cubes of silver-lead ore—a very promising lode. In the stipes, over the lode of the 30 fm. level, the lode is 20 in. wide, with a branch of carbonate of iron on the south part, containing a little silver. At Wheal Sisters, in the shallow level east, we have just cut through a small cross course, and the lode at this place is disordered.—S. RICHARDS: Nov. 30.

SOUTH CARADON.—Statement of accounts for July and Aug.—To labour costs, merchants' bills, lords' dues, &c., for two months, 3025l. 17s. 11d.—By copper ore sold, 4129l. 14s. 6d.—showing profit of 1103l. 16s. 4d.; balance from last account, 886l. 9s. 1d.—1490l. 5s. 6d.; payment of dividend of 10l. per share, declared 24th Nov., 1280l.—leaves balance now in hand, 210l. 5s. 6d.—The following report from Capt. James Clymo was presented.—For the information of our absent shareholders, I beg to state to them, that this mine has not looked so well for years as at the present time, especially on our south lodes. On Clymo's lode, at the 60 fm. level, we have driven on the course of it 150 fms.; at the 45 fm. level, 140 fms.; and at the 30 fm. level, 80 fms.: this lode will average 2 ft. wide throughout, and set at 3s. in the 1l, and a fair tribute; 35 fms. further south is Jope's lode, which is 2 ft. wide, and a good course of ore. We expect to intersect another lode in about a month, which is Wheal Agar main lode; there it is 4 ft. wide, producing fine stones of ore. We have also very many lodes north of our main lode, which we expect to cut within a few months in a cross-cut, at our 30 fm. level; these lodes are very productive in West Caradon Mine, and very near our boundary.

SOUTH WHEAL TRELAWNEY.—Sobey's lode, in the adit level, driving south, is 18 in. wide, composed of gossan, flookan, munda, and sprigs of lead, the direction and underlie being just the same as last reported on, and is again set to drive by 4 men, at 65s. per fm.—we shall push on this level as fast as possible, to relieve the engine-shaft of water, and to ventilate it; we must also sink a small shaft on the back of the adit level for air. After the communication is made, we shall increase the number to 6 men; but at present there is not sufficient air for more than 4 men. Snell's (or engine) shaft is sunk 3 fms. below the surface, the ground in which is a beautiful light killas; we have some water in the shaft at this depth, which is hardly anticipated meeting with so soon—a pretty deal of it, however, is surface water—so much rain having fallen of late, that we may reasonably expect water, more or less, while the weather continues so wet.—W. LEAN: Nov. 28.

TRELEIGH CONSOLS.—In Christie's shaft, below the 100 fm. level, the sumpmen have been fixing a lift of sumps, putting down wood rods, and sending up the spare lifts, they are now in course to sink—this is in the country.

In the 100 fm. level, east of Christie's shaft, we have driven 1 fm. north, in which we have cut a lode, 2 1/2 ft. wide, it has a very promising appearance, and producing some very good ore; we shall drive on this part, and be able to say more of it next week; in the 100 fm. level, west of Christie's shaft, the branch is small, but more promising than it has been. In Garden's shaft, below the 90 fm. level, we are sinking in the country; but we have branches intersected with it, and ore—the lode still lies to the north of the shaft; in the 90 fm. level, west of Garden's shaft, the lode is 3 ft. wide, but reduced in value, worth 20l. per fm.; we think this end, which is 16 fms. west of shaft, is near a cross-course, which we had driven through in the 70, 18 fms. from the shaft. In the 80 fm. level, west of Garden's shaft, lode 2 ft. wide, very kindly, producing good stones of ore—this end is not so far west as the 20 winze by 5 or 6 fms.—we expect to communicate next month (December). In the winze, below the 70 fm. level, the lode is 18 in. wide, without mineral; in the 70 fm. level, west of Good Fortune, we have driven 1 fm. north, in branches of the lode; we think there is more lode further north, and have set 1 fm. to cut the lode. In the 60 fm. level, west of Symons's shaft, the lode is 20 in. wide, worth 3l. per fm.—this is looking more kindly. In the 50 fm. level east, on north lode, we have set to drive east of the cross-cut. In the 44 fm. level west the lode is 20 in. wide, with stones of ore.—W. SYMONS: Nov. 27.

TRESAVEAN.—The old east of shaft, sinking below the 286 fm. level, lode 2 ft. big, worth 12l. per fm. The 286, driving west of this shaft, 2 ft. big, worth 15l. per fm. The 248 fm. level, west of old shaft, lode small and unproductive. The 176 fm. level, driving west of Treweek's shaft, 3 ft. big, producing stones of ore. The 248, east of Harvey's lode, 2 ft. big, with stones of ore. Wheal Busy shaft is not so good for tin as reported last week. Our pitches are in a falling state, and must work close to meet cost.—Nov. 20.—[We published, in our last Journal, the statement of accounts, &c., as presented to the meeting, held at the mine, on the 24th ult.]

TREWALLACK.—In the 30 fm. level north the lode is 7 ft. wide—western part for 4 ft. hard spar; against eastern wall a leader, 3 ft. wide, soft spar, priam, and flookan, with particles of munda and lead—this part is very promising; suspended for the present—men removed to sink a new shaft from the surface on the present adit end south; in the 30 fm. level south, the end has been in the slide, and the bottom part is not clear of it, the lode is large and promising, with a large stream of water issuing from it; indeed, this level has completely drained the 20 fm. level—this level we have suspended for the present, and set the south shaft, to sink from the adit to the 20 fm. level. In the 20 fm. level, south of Edward's shaft, lode 4 ft. wide—the appearance of this level is greatly improved, and is composed of soft spar, munda, soft flookan, and priam, and greatly resembling the lode a short distance before the lead was discovered on the adit end south—this level is completely drained, and we hope, before the south shaft is sunk to this level, it will be under it and rising against it. In the adit end south the lode is 4 1/2 ft. wide, with a leader on the east wall, 2 ft. wide, of rich gossan, priam, and flookan, with stones of lead; the last 2 fms. driving has not produced so much lead, but I think it scarcely possible to see a lode of greater promise than it is at present in this end, and there are some 20 fms. of ground in this level which will set on tribute; after the new shaft has been communicated to this level, and from the present indications, I believe we shall have lead in a few feet driving. The box of specimens of lead, priam, flookan, gossan, &c., &c., were broken this day in the back and bottoms of the adit, and I hope and believe they are only the blossoms and first fruit of an abundant harvest.—JOHN LEAN: Nov. 30.

UNITED HILLS.—In the 90 fm. level, eastern end, no lode broken for the past week; in the western end the lode is 2 ft. wide, 18 in. good ore; in the eastern stipes the lode is 2 1/2 ft. wide, 2 ft. ore of good quality; in the western stipes the lode is 2 1/2 ft. wide, 18 in. good ore. In the 80 fm. level, eastern end, the lode is 4 ft. wide, ore throughout, of low quality; in driving north, no alteration for the past week. In the 70 fm. level, eastern end, the lode is 2 1/2 ft. wide, 18 in. ore of average quality. West of James's shaft the lode is 2 1/2 ft. wide, producing some good stones of ore. In the 60 fm. level the lode is 3 ft. wide, producing ore throughout, of average quality. In the shallow adit the lode is 3 1/2 ft. wide, unproductive. At Wheal Charles, in the 50 fm. level the lode is 18 in. wide, not producing any ore. In the 40 fm. level the lode is 3 1/2 ft. wide, 2 ft. ore of average quality. At Wheal Sparrow, in the 40 fm. level the lode is 2 ft. wide, 18 in. ore of low quality. In the 30 fm. level the lode is 3 ft. wide, 18 in. on the north part ore of a low quality. In Turner's shaft the lode is 2 1/2 ft. wide, 2 ft. good ore. We are obliged to suspend United Hills eastern shaft, in consequence of the water; the men are now engaged stopping west of the shaft, where the lode is 2 1/2 ft. wide, 18 in. ore of good quality.—THOMAS TREVEEN; ROBERT WILLIAMS: Dec. 1.

VICTORIA.—Our men are engaged in timbering and securing the lobby for a wheel, in clearing out foundation for carpenters and blacksmiths' shops, and material house. We have also four men driving close from lobby house to wheel-pit, which will be about 20 fms. We are in a forward state with our works, preparatory to our erecting the wheel, which I hope will not be delayed, as we shall be ready on our part by the time specified, as I am very anxious to commence sinking. I hope, in about 10 days, to be able to set the sinking of the engine-shaft—so that, by the time the men have sunk as far as they can for water, we shall have the engine erected to drain the shaft.—J. CHYNSWETH: Dec. 2.

WEST WHEAL JEWEL.—In the 115 fm. level, east of cross-cut, on Wheal Jewel lode, no lode taken down in the first week, ground very hard for driving. In the 100 fm. level east, on same lode, the lode not taken down in the past week, worth 4l. per fm. when taken down. In the 85 cross-cut, south of Williams's cross-course, ground very favourable for driving. In the 12 fm. level, west of Hodge's cross-course, on Tolcarne tin lode, the lode is 18 in. wide, worth 12l. per fm.; in the 12 fm. level, west of old sump shaft, on same lode, the lode is 15 in. wide, and worth 3l. per fm.; in the winze, in the bottom of the 12 fm. level, west of Quarry shaft, on same lode, the lode is 20 in. wide, worth 30l. per fm.; in the winze, in the bottom of the same level, east of Quarry shaft, on same lode, the lode is 18 in. wide, and worth 10l. per fm. In the winze, in the bottom of deep adit, west of Quarry shaft, on same lode, the lode is 2 ft. wide, and worth 24l. per fm.—R. JOHNS: Nov. 30.

WEST WHEAL MARIA.—I beg to inform you, that the eastern whim-shaft is down about 27 fms., the ground is rather hard for sinking; the lode in the shaft is about 5 ft. wide, composed of munda, spar, and rich stones of copper ore—a very promising looking lode. The water is drained in the engine-shaft to the 34 fm. level; the shaftmen are employed cutting down and securing the shaft from the 12 to the 34, where we intend to put in bearer and cistern, and to fix 11-inch plunger-lift.—T. RODDA: Dec. 1.

WHEAL ADAMS.—In the 50 fm. level driving south, on the eastern lode, the lode is 3 ft. wide, and little improved since last week—worth about 6l. per fm.; the 50 fm. level driving south, on the western silver-lead lode, is very much improved since last reported. The rise in the back of the western silver-lead lode is worth about 5l. per fm. for lead, beside the brown jack that we have in it. In the 45 fathom level, that we have driven south in the run, we have a lode in this end about 6 ft. wide, of brown jack, with fine stones of lead in it, where the two lodes come together, the eastern lead lode and the jack lode. The 40 fm. level driving north is poor for lead; the pitch in the back of the 40 fm. level is very much the same as last reported. The lead lode that we cut last week, in the 28 fm. level, is looking very well; we have a lode in the north end about 18 in. wide, and worth about 5l. per fm.; this is all in whole ground going north from the cross-cut. The tribute pitches are very much the same as last week; we think that they are getting good wages.—T. MOYLE: Dec. 1.

WHEAL BARBARA.—In noticing the appearances and proceedings of this mine, I beg to say that our driving this week in the adit end east has been about 7 ft.; the lode is something harder than at the time of last report, which accounts for reduced progress; the lode, however, is increased in size, and has produced good stones of work; 2 fms. will bring us under the Quarry shaft; the cross-cut to the lode, under the ravine, has been commenced, and driven 2 fms. in very favourable ground; I have continued driving eastward on the back of this lode, which, in three additional pits, presents equally promising features—the lode rather increased. I have now to announce the discovery of another lode to the north, and parallel, distant about 20 fms. upon this lode, which is large and very kindly. I purpose sinking a trial shaft, as deep as practicable.—W. H. F. STEPHENS: Nov. 28.

WHEAL CONCORD.—The lode in the 38 fm. level, west from the engine-shaft, is 2 1/2 ft. wide—the southern side of which is producing particles of lead. In the rise above the 28 west, the lode is 3 ft. wide—a large proportion of which is munda, and the remainder quartz and flookan. The former party, in driving the 28 west, left the lode for a considerable distance to the south of their level, which we are now taking down, as well as stopping the back. The lode here is about 3 ft. wide, producing fine rocks of lead. We are also raising a little lead from the back of this level, east from the engine-shaft. In driving the 20 south we have cut (what I consider to be) the lode; when first discovered, it was a small branch of white flookan, with a rapid dip north, which was probably caused by its proximity to a cross-course. It is now, however, 1 foot wide, with spots of lead disseminated through it. We intend to drive a short distance west, and then communicate with the level above. I think it would be judicious to drive this cross-cut further south, to discover a lode which is said to be only a few fathoms before the end. In prosecuting discoveries in the back of this level, we have met with a lode 18 inches wide, from which we are raising some good work. These places, where lead has been discovered, we propose to offer on tribute at our next setting day. It has been thought proper to suspend driving the 10 east, in consequence of its being so near the surface. The western stipes, in the back of this level, are yielding some good work; but the eastern stipes are poor and discontinued. In sinking the winze below this level, we have holed to some old workings. The men will now commence stopping from it, where there is a lode of moderate quality from 3 to 4 ft. wide. Our parcel of dressed lead is now computed 25 tons. The water-wheel for crushing is fixed, and the other machinery will be got in order as soon as possible.—J. R. CLYMO: Nov. 28.

WHEEL MARGARET.—Account to the end of Sept., held Nov. 24.—To labour cost and carriage, 1879L 19s. 4d.; enals, 126L 18s. 8d.; merchants' bills, &c., 649L 17s. 2d.—2656L 15s. 3d.—By tin sold, 8894L 2s. 4d.—showing profit of 1237L 7s. 2d.; add balance end June last, 262L 18s. 11d.—1500L 1s. 1d.; payment of dividend now made of 10L per share, 1120L—leaves balance in hand, 389L 1s. 1d.

WHEEL LOUISA.—The engine-shaft is down 20 fms., and I have put our men to drive towards the lode. During the past week, we have cut several very promising branches near the bottom of the shaft, spotted with copper ore, all tending towards the lode, letting out large streams of water, which indications are highly encouraging. At the adit level, the lode is from 12 to 18 feet wide, interspersed with lead throughout, underlying about 3 ft. in a fm.; and should the same underlie continue to the 30 fm. level, we shall have about 5 fms. to drive to cut the lode. At the adit end, in the south part of the mine, the ground through which we are driving is looking very kindly for copper. I do hope that I shall be able, in a very short time, to report of having cut here rich lodes.—J. CRYNOWETH: Dec. 2.

LYE TON MINE.—At a meeting of adventurers, held at the Sun Inn, Callington, on Wednesday, the 26th November—S. B. SERGEANT, Esq., in the chair.—a call of 10s. per share was made, to carry on the present operations of the mine.—[We have not been furnished with the statement of accounts, or the captain's report, usually supplied on such occasions; but presume we shall have them in time for our next Number.]

SOUTH WHEEL TRELAWNEY.—A general meeting of the adventurers was held at the offices of the company, 26, Birch-lane, on Saturday, the 28th November.—CHARLES CHIPPENDALE, Esq., in the chair.—The CHAIRMAN opened the proceedings of the meeting in a very concise and comprehensive manner—at the same time, stating his confidence in the opinions formed by the several agents, who had inspected the mine at various times. Perhaps, no greater proof of the correctness of this assertion can be given, than the large interest which he himself held in the mine. He (the chairman) believed that Trelawney and South Trelawney were the same lodes, having minutely examined their component parts. He congratulated the meeting on the general appearance of the mine, and urged the immediate adoption of the most strenuous measures for the more efficient prosecution of South Trelawney.—The notice convening the meeting having been read, the minutes of the general meeting of adventurers, held at Liskeard, on the 12th August last, were also read and approved of. The following statement of accounts, showing balance of cash now in hand, and amount of outstanding calls, was examined and approved:—Balance against the mine at the meeting 12th August last, 7L 17s.; costs—July, 1846, 70L 5s. 8d.; August, 65L 15s.; September, 55L 7s. 1d.; paid to Mr. Raby, 500L; costs, Oct., 85L 7s. 7d.—784L 5s. 4d.; add balance in hand, 159L 11s. 8d.—making a total of 944L.—By arrears of calls, made 5th February, 44L; calls made 12th August, 1024L; less unpaid, 124L—900L—944L. The agents having agreed and reported on the spot whereon to sink the engine-shaft, it was resolved, that the steam-engine now at the Hanson Mine be purchased for 535L, as agreed by Capt. W. Lean, and that it be erected on the mine as soon as possible. A call of 3L per share was made, to be paid before Monday, 28th inst., to Mr. Thomas Hackett, Birch-lane. Mr. William Jenkin was appointed captain, at a salary of 5L 5s. per month; and Mr. N. W. Tredinnick was directed to superintend the erection of the steam-engine, &c., at the rate of 10s. 6d. per inch, subject to testimonials, &c., being produced satisfactory to Messrs. Watson, Hackett, and Chippendale. Mr. Harvey having resigned his situation as purser at the end of December, Capt. William Lean was appointed a purser in his stead *pro tem.*, to commence at the end of December.

WHEEL ARVORSE.—A meeting of adventurers was held at the Queen's Head Inn, St. Austell, on Tuesday, the 24th Nov.—THOMAS GROSE, Esq., in the chair.—The accounts to the end of September, presented by the purser, were examined and found correct, showing balance of 52L 4s. 8d. against the adventurers: the following is an abstract:—To March cost, 5L 10s.; April, 6L; May, 12L 9s.; June, 11L 6s.; Capt. Glanville, agency to the end of June, as voted at meeting held 22d July last, 12L; July cost, 30L 9s. 9d.; August, 40L 17s. 9d.; September, 25L 5s. 2d.; merchants' bills, 37L 7s.; paid Mr. Strickland for purchase of sett and other expenses, as agreed on at the meeting, held 22d July, 128L—308L 4s. 8d.—By amount of first call, 2L per share, 256L; leaving balance against adventurers of 52L 4s. 8d.—It was then resolved, that a call of 1L per share be made, payable at Messrs. Coode, Sons, and Shilsons, for payment of balance, and for further prosecution of the mine. The minutes of the meeting, held 22d July last, were confirmed, and Mr. Thomas Grose appointed a member of the committee of management, in lieu of Capt. Dalley. The committee were instructed to apply for the adjoining sett of Ventonwin, should they consider it desirable to attach the same to Wheel Arvorse.—The following report, from Capt. T. Glanville, was read to the meeting:—I beg to hand you my report of Wheel Arvorse Mine. Since our last meeting we have holed and cut the plat in Barrett's shaft at the adit level. At the bottom of the shaft we have discovered a lode 2 ft. wide, impregnated throughout with copper, which I believe is No. 2 lode—we are now about to drive on the course of it. On the lode we cut in the same shaft at 15 fms. from surface, we have driven 8 ft.—this lode is about 3 ft. wide, having good stones of copper in it. From Barrett's shaft, at the adit level, about 7 fms. north, a lode has been driven on about 20 fms. east, averaging from 2½ to 3 ft. wide, and composed of jack, muncie, and a very rich gossan, with spots of copper in it. We believe this is the lode we cut in the shaft at 15 fms. from surface—these lodes appear to be running through Wheel Louisa. We hope to get the horse whim erected in a few days.

WHEEL GILL.—A meeting of the shareholders was held on the mine, on Wednesday, the 26th ult.—JOHN GIBSON, Esq., in the chair,—when the accounts, having been examined and approved, were passed and allowed.—It was then resolved, "That the purser be directed to demand the calls from each shareholder in arrears, now, or at any time hereafter; that, if such arrears be not paid within 10 days of such application, the accounts be placed in the hands of the solicitor of the company, with directions for him to proceed for the recovery of the same forthwith."—A call of 2L per share was made, to be paid into the East Cornwall Bank, Liskeard.—The following report, from Capt. N. Faulk, was read to the meeting:—In reporting on the present appearance of the mine, I beg to state the lode at the 54 fm. level, driving east, is about 3 ft. wide, composed of muncie, spar, and capel, with occasional stones of ore. In the levels above, in this part of the mine, the lode has never produced any saving work. At the 40 fathom level, in driving south, at the eastern cross-course, we found good stones of lead and also good stones of ore—this I believe to be a lead lode. After driving about 8½ fms. south on this course, we cut the copper lode east of the course, on which we have driven about 1½ fm. From the quantity of water issuing from the south part, I was induced to believe the main part of the lode was still south. Yesterday, I directed the men working there to cut in farther south, from which, I am happy to say, my expectations were realised. They cut in about 1½ ft.—that part of which is presenting a most satisfactory appearance, being composed of peach, spar, and blende, with a considerable portion of copper ore; the width of the lode seen is about 4½ ft. The south wall not yet being reached, prevents my stating the entire width of the lode. The 26 fm. level west is driven nearly to the cross-course, through a large ore lode, but less ore than it appears to be in the 40 fm. level. In the 26 fm. level east the lode still remains disordered by a slide, which has split it in branches, similar to the disorder in the 16 fm. level, some time since. After the lode in the 16 fm. level again became regular, it was large and kindly for a great many fms.; it still remains kindly in appearance, but is at present much smaller, being now about 1½ ft. wide, of muncie, blende, and spots of ore. We expect we have not much more ground to drive in the 26 fm. level east before the lode will again make regular, as in the 16 fm. level.—[We have not received the usual abstract of accounts, but expect to have them by next week.]

[FROM CORRESPONDENTS.]

CALLINGTON MINES.—At a meeting of the directors, held at the offices of the company, on Thursday, a dividend of 1L per share was made, making the third dividend since the present company resumed operations.

WHEEL ARVORSE MINE.—This mine has been resumed by a respectable company of adventurers, joined by several mining agents of the locality of well-known ability, and practical experience. There are several lodes in this sett, and the continuation of these to the west are Wheel Louisa and Unanimity Mines: the former are now looking well, and bid fair to remunerate the adventurers for their outlay; the latter, there has been upwards of 10,000L worth of copper risen about the adit level, and which would be working to the present day could the sett be obtained. From 1818 to 1823, a considerable sum of money, to the amount of nearly 2000L, has been expended in Arvorse Mine, in bringing up an adit a distance of 300 fms., to cut the before-mentioned lodes, calculated, when complete, to unwater the mine 30 or 40 fathoms from surface; but, in consequence of a gentleman in the neighbourhood, who had heavy shares therein, failed when the party got into difficulties, and the concern became abandoned.

WHEEL NORRIS.—In consequence of the shareholders present at the meeting, held on the 12th Nov., having declined to sign a guarantee to the bank, for the sum of 350L, which the purser was, by resolution, authorised to borrow, the directors of the Devon and Cornwall Bank refused to make such advance—therefore, the operations of the mine for the present are necessarily suspended. A special meeting is convened for the 9th inst., to be held at St. Cleer, near Liskeard, at 12 o'clock, for the purpose of taking into consideration the most prudent steps to pursue.

WHEEL TRYPHENA.—This mine, which is situated in the parish of Camborne, and has been for a long period worked to a heavy loss, is now likely to become a great favourite, from the important discoveries recently made. It appears that the shareholders, having been so long and frequently called upon for funds to prosecute the mine, had resolved upon suspending the workings; but, from the indefatigable exertions and efficient management of the agents, the mine is now likely to become a profitable investment. Two levels, which are now in course of driving on a tin lode, are estimated worth, respectively, 100L and 80L per fm.,

whilst the third level, on a copper lode, is worth 40L per fm.—thus showing the probability of a mine being worked to a great loss by one party of adventurers and abandoned, whilst another may immediately afterwards come in and realize a fortune upon the former's loss.

EAST WHEEL ROSE.—Since the clearing out of the rubbish which effected its entrance into the different shafts of East Wheel Rose Mine, during the time of the late melancholy accident, a considerable quantity of ore has been raised of excellent quality, and that the present state and prospects of the mine generally are by far better than what the most sanguine expectations of any could, four months since, have anticipated. We understand that a new and very powerful engine has just been put to work, and that another is about to be constructed with as little delay as possible.

METHA MINE.

SIR.—As a great majority of the shareholders in this mine are not resident in Cornwall, but in other distant parts of the country, we beg to forward to you, for their information (now that the steam-engine is erected, and working at the above mine), two reports—one from Capt. John Middleton, chief agent of the celebrated East Wheel Rose Lead Mine, and the other from Capt. Gripe, of St. Agnes, agent of Metha Mine. We are, Sir, yours, &c.,
To the Editor of the Mining Journal. BULLOCK AND LUSCOMBE.

[COPY.]

DEAR SIRS,—In compliance with your request, I beg to say, that I have for a long period entertained an opinion, that the East Wheel Rose lodes pass through Metha sett; and our workings have been driven north to within 90 fms. to the south part of your sett. From the direction of the East Wheel Rose lodes, I do say, without hesitation, that they pass throughout your sett. It is with regret that I have no shares with you, believing you have a valuable property there, and wishing every success, I remain, dear Sir, yours obediently,
JOHN MIDDLETON.

Metha Mine, Nov. 30, 1846.
DEAR SIRS,—Since the last meeting we have completed our engine-house, and have erected the engine, which was set in motion on Friday last, and worked off very satisfactorily; we shall now clothe the inner parts of the same, to prevent, as much as possible, the condensation of the steam, which will effect a saving in the fuel. The engine-shaft is now sunk to the depth of 11 fms.; we were obliged to suspend the sinking, about four weeks since, by reason of the increase of water; but now we have our engine ready, we intend to resume the sinking forthwith to a 20 fm. level, where we shall drive a level westward, to cut into the well-known and productive lode called "Middleton's," in East Wheel Rose. Various have hitherto been the opinions as to the course, or run, of this lode; but now it is obvious, and admitted by all parties, that we have it in and through the length of our sett, which is confirmed, as far as it possibly can be, by the fact of the East Wheel Rose workings being within 70 fms. of our southern boundary. The strata in which the lodes are imbedded is precisely similar in both mines, and there is every reason for supposing that they will be equally productive with us; and as we have a good length of sett, it is my opinion that we have a valuable property. I am, dear Sir, yours, &c.,
Messrs. Bullock and Luscombe, London. JAMES GRIFE.

WHEEL NORRIS MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.
SIR,—I am surprised to observe a report of Wheel Norris, in the last Number of your Journal, with the signature "J. Clymo" attached, in which the lode is stated to be "worth from 30L to 40L per fm." As I am a party interested, and the signature is similar to mine, it will naturally be supposed to have emanated from me, which I assure you is not the case, and I thus publicly beg to contradict it altogether. It is probably a trap by some designing person to catch the unwary, for which reason I would thank you to publish this in the next Number of your valuable Journal. J. B. CLYMO.

Wheat Concord, Dec. 2.
BOLD ADVENTURE LEAD MINE.
SIR,—Considering you somewhat a conservator of the mining interest, allow me to ask, if you know anything of a lead mine, in the parish of Penzance, in the county of Cornwall, styled "Bold Adventure." Meetings are held, calls made, and expenses represented to be going on as if it were a reality—perchance, however, nothing real attaches to it beyond that of paying calls.
Devonport, Nov. 28. M. L.

THE COST-BOOK SYSTEM.
SIR,—In the report of the late proceedings in the Vice-Warden's Court, it is stated—"His Honour again ruled, as he had in the case of Harvey v. Tippet, in 1837, that a purser may refuse to allow a transfer of shares, unless the bygone costs are paid up." But, permit me to say, this leaves the matter still obscure as to what should be the course of a purser, if one or more shares are requested to be transferred from others on which there are arrears of costs, and the costs due on the former only tendered with the transfer; this is a case of very common occurrence; and under identical circumstances, to my knowledge, has been dealt with differently. Is a purser justified in saying—"I will have all the costs due from A, before a single share shall be transferred, or must he be satisfied with the proportion of costs only of the shares tendered for transfer?" As most persons of mining experience are now agreed, that the Cost-book System is the best adapted for carrying on mining operations; and it being exempt by the Legislature from certain legal provisions, as remarked very properly by you, that it may have free action—I submit, it would be extremely desirable to know what is the Cost-book System—to have its regulations plainly defined. It is a great grievance to the mining community, that they should have to wait for judicial decisions on questions of the most common occurrence in the working of that system. I have pointed out one obscurity to you—I could many others.—What are the rights, I would ask you, of a minority against a majority disposed to be unfair and unreasonable? and what the rights of a majority against a minority disposed to cavil and to obstruct the work? I know of no sufficient provisions for one or the other. Formerly, if there was a disagreement, the party complaining claimed his proportion of the product of the mine in kind, and sold it himself—paying the like proportion of the expenses in raising it; sometimes he would not receive it in the ore, but take his proportion of the proceeds from the buyer; he would also claim, in all matters connected with the raising of the ores, to supply his proportion. Is this still the law of the Cost-book System? If so, on what ground are such large balances retained by parties having the control, as we do now? Let any one take up the ancient laws of the Stannaries, and he will at once perceive, that their effect was to render the co-partnership in working a mine as independent as possible, and it would appear to be assumed that the co-partnership ceases as soon as the ore is fit for sale; but, on the other hand, this practice might be ill suited to the large undertakings we see now carried on, and would possibly check the enterprise necessary for their success. Still, I submit, it was an oversight when the Vice-Warden's Court was re-established with new powers, that there was not given us at the same time a revised code of mining laws, adapted to our present wants and circumstances. Legislators of Cornwall, does there exist a mineral province of any importance in the world, that has not its mineral code, except yours? It is true, if any question should arise, we can go into the Vice-Warden's Court, and we shall have a decision founded upon the soundest law, and as such will be a guide from henceforth; but there will be found this objection to many of these decisions, right in themselves as abstract questions of law, yet with reference to the end proposed, they leave the *modus operandi* of the Cost-book System in many cases more obscure than ever. As for the laws of the Stannaries, nine-tenths of the matter contained in them are for the regulation of a Royal farm which no longer exists, and therefore of little value; but it is a similar compilation, changed to the present state of things, and comprehensive in its object, which we want. A PURSER AND ADVENTURER.

QUEBEC AND LAKE SUPERIOR MINING ASSOCIATION.—It appears that Quebec has not been altogether indifferent to the mining projects on Lake Superior, which have been in operation in the United States and in other parts of Canada. In the former some half a hundred companies have been formed to work copper mines on the south side of the Lake. Last winter companies were associated in Upper Canada and Montreal for a similar purpose; and, latterly, one has been formed at Quebec, which has obtained a grant near the entrance of the Lake, on the north side, from which we have seen samples of pure copper and copper ore, mixed with veins of silver, and we understand the enterprise is now prosecuted with vigour. Government, it seems, have agreed to make grants to all applicants, on condition of working the mines, and it is to be hoped they will all be attended with success. The demand for this metal is extensive in every part of the world, for the sheathing of vessels, for manufactures for household furniture; and, if its abundance should increase its cheapness, there is no telling to what extent it may be in demand for roofing buildings, and other purposes. Its export from Canada would help to pay for articles of foreign produce and manufacture which we want, and greatly add to the wealth of the country. We trust that no obstacles will be thrown in the way by the Government, but rather every encouragement afforded, and that the little jealousies of trading companies and localities will not be brought into play, but a "clear field and no favour" be allowed to all. It is in such cases that a "free trade" is advantageous to the community; and those whose capital and good management enable them to serve the public the cheapest, are the best entitled to public favour. We understand that 33 casks of ore, for the company, has arrived.—Quebec Gazette.—The Halifax Morning Post says, in addition to the cargo sent by the West Indian, a further quantity will be shipped on board the Douglas, for the same destination.

COPPER ROCK.—The steamer Detroit entered Detroit from the Sault de Lake Superior, on the 30th ult.; she had on board another large copper rock, weighing between 2 and 3 tons, taken out from the Baltimore Company's mine, and destined for the east.—Ibid.

SILVER ORE.—A vein of silver ore has been discovered in Dubois county, Indiana; and a company has been formed, who are now erecting a furnace, for the purpose of working the mine.—American Sun.

MINER'S SAFETY FUSE.

[Specification of patent granted to John Solomon Bickford, George Smith, and Thomas Davy, all of Tuckingmill, Camborne, in the county of Cornwall, for certain improvements in manufacturing the miner's safety fuse.]—*Newman's London Journal.*

This invention consists in certain improvements in the manufacture of the safety fuse, for igniting charges of gunpowder when blasting rocks, &c., for which a patent was granted to William Bickford, September 6, 1831. The fuse consists of a cylinder of gunpowder, in the centre of a rope composed generally of 8, 10, or 12 threads, or yarns, carefully twisted (in the manner of twine-spinning or cord-making), so as to enclose the gunpowder; the rope is defended by a covering of strong twine, wound on nearly at right angles to the "lay" of the yarns composing the rope (which process is termed "countering"); and the whole is afterwards coated or varnished over. The laying of the yarn is performed by a machine, described in the specification of the above-mentioned patent, and called a "monkey;" but only a single fuse can be spun by it at one time. Now, the first part of this invention consists in a novel construction of machine for spinning three or more fuses at the same time.

Fig. 1.

Fig. 2.

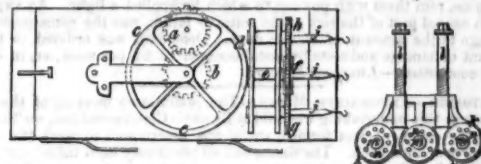
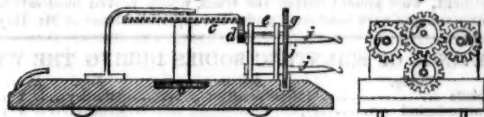


Fig. 1, is a plan view; fig. 2, an end view; and fig. 3, a vertical section of a monkey for spinning three fuses at the same time. This machine travels along a table or bench, between two ledges; on the side of one ledge a rack is fixed, having 24 teeth in each foot of its length; and the wheel a, of 12 teeth, working therein, is thus caused to rotate when the machine is drawn onwards. The wheel a, drives the wheel b, having a like number of teeth; on the spindle of the latter wheel, at its upper end, is a crown-wheel c, with 62 teeth on its under edge, working into a pinion d, of 8 teeth on the spindle e; at the outer end of which spindle there is a cog-wheel f, with 18 teeth, working into three wheels, g, h, i, of the same size and number of teeth. On the centres of the wheels, g, h, i, are wires and crooks j, j, j, to which the yarns are attached; and as the monkey travels along the bench, the yarns are spun into fuses by the rotation of the wheels j, j, j. If the cog-wheel f, is placed in such a position that a larger number of wheels may gear into it, and such additions are made as will be obviously necessary, four, five, or more fuses, may be spun at one operation.

Fig. 3.

Fig. 2.



When the improved monkey is used, the collars and funnels through which the yarns and gunpowder pass, are arranged in the manner represented at figs. 4 and 5; fig. 4 being an elevation, and fig. 5 a plan view. The collars, k, k, k, are cast in one united piece of brass-work, which is fixed to an upright frame by the screws, l, l; the centre holes m, m, (fig. 5), receive the gunpowder funnels o, o; and through the holes, n, n, the yarns, p, p, pass, meeting below, and enclosing the gunpowder as the fuses are spun, q, q, q, are the three fuses issuing from the apparatus. The methods of supplying yarns and gunpowder to each collar, and the other general arrangements for spinning the fuses, are the same as those described in the specification of the above-named patent.

The second improvement consists in introducing into the centre of the fuse a strong thread or yarn, smaller and less fibrous than the yarns used for making the fuse. The thread employed for this purpose is that known as No. 135 white-brown thread; it is supplied from a reel, and passing down through the gunpowder in the funnel, is spun into the centre of the fuse by being attached to the monkey with the other yarns; the central threads are shown at r, r, r, in fig. 4.—By the introduction of the central thread, the gunpowder in the lower part of the funnel is constantly kept in motion, and travels on with the thread, so as to flow regularly down into the fuse; and thus the continuity and regularity of the cylinder of gunpowder is ensured.

The third improvement relates to the coating or varnishing of those fuses which are intended for blasting in dry ground, and in close and confined situations, where considerable variations in temperature are experienced. The coating of tar or resin, heretofore applied, burns with much smoke and heat, and is affected by changes of temperature; therefore, in order to avoid these inconveniences, the patentees propose to use a composition formed by dissolving 4 lbs. of the best glue, and 2 lbs. of yellow soap, in 12 gallons of water, by a gentle heat, and then adding 56 lbs. of whiting to give it a body.

The fourth improvement relates to fuses to be used under water. In manufacturing these, it has been usual to add a second "countering," and then to coat or varnish them a second time; but fuses, prepared in this manner, have occasionally failed, in consequence of the varnish becoming hard and brittle on immersion in water, and cracking, and thus admitting the water to the gunpowder. The improved mode of preparing the fuses is as follows:—After the fuse has been coated or varnished with tar or resin, and before the coating becomes hard, the fuse is fastened to "crooks," and made to revolve as if for countering, as described in the former specification, and a strip of brown paper is wound around the fuse, in a helical form, so as to completely cover it. A thread is wound upon the paper, in order to fix it and prevent shifting; and then a coat of tar or resin is applied to the paper: the fuse is thus rendered perfectly waterproof.

The patentees claim, firstly—the improvement in manufacturing fuses by the use and application of suitable arrangements and apparatus, whereby three or more fuses may be spun at the same time, as above described. Secondly—the improvement in manufacturing fuses by the introduction of a central thread, spun in with the gunpowder. Thirdly—the improvement in manufacturing fuses by covering such as are to be used in close or warm places, and not under water, with a non-inflammable coating or varnish. Fourthly—the improvement in manufacturing such fuses as are to be used in or under water, by the application of a second countering of paper and a second coating of tar or resin varnish.

MINE ACCIDENTS.

Trubshaw Colliery.—SIR,—It is my painful duty to inform you of a sad accident, which has occurred in this neighbourhood, at the Trubshaw Colliery, which is under the superintendence of Mr. John Thomas Woodhouse, of the Moira Colliery, at Ashby-de-la-Zouch. Yesterday, just as the workmen were about to commence their operations, they were alarmed by hearing a loud noise, similar to the report of a gun; they immediately made the best of their way to the shaft, as fast as possible—but, in consequence of several stoppings which were blowing down, it was with difficulty they reached the shaft. Melancholy to relate, three fell victims to the fiery element—Wm. Copeland, who has left a wife and eight children; John Bailey, wife and five children; and G. Mellor, a single man.—A LOOKER ON: *Luton, Dec. 1.*

Clough Colliery, Kersley, Bolton.—J. Boardman was killed here. Clowdown Colliery, near Bath.—Two men, named Colborne (a farrier), and George Horler (a shoer), descended Clowdown coal-pit, for the purpose of examining a horse which works underground there; and afterwards, as they were ascending the pit, at about 90 fms. from the bottom, the chain in which they were "slanged," was knocked off the rope by another chain of about 5 cwt., which fell from the top of the pit, and the two unfortunate men were precipitated to the bottom, and dashed to pieces.

Crouch Quarry, Bishopbridge, near Glasgow.—W. Harrison was killed here. East Minor Pit, Hutton Colliery.—W. Grey was killed while working here. Edmondale Colliery, near Gateshead.—G. Elliot was killed here. Grange Colliery, Durham.—J. Stoker was killed by being jammed between the top and roof of the colliery, whilst working here.

Hopwell Colliery, near Staveley.—As J. Booth was drawing the air-pit in the engine-house, he was severely scalded in the face. Mr. Barrow's Works, Staveley.—W. Burgin was killed by falling out of the chair, while ascending the pit to avoid the sight of a fellow workman, named Dawes, who had just been injured by an explosion.

Madeley Colliery, Wolverhampton.—J. Higginbottom was killed here. New Trindon Colliery.—Three pitmen named Wind, Wilson, and Savage, were killed by the rope breaking while they were descending the shaft to work. Ripley, Derbyshire.—J. Lancashire was killed by a fall of bind. The Padbrook Colliery, Little Hulton.—Mr. J. Brimelow, assistant to Mr. H. Mort, land surveyor, Tyldesley, was very severely injured at the colliery of Messrs. Grundy. Mr. Brimelow went down the mine for the purpose of making a survey, and took a safety lamp, but a collier unfortunately followed with a candle, and an explosion took place. The miner received very little injury; but we are sorry to add that, by the last accounts, Mr. Brimelow lies in a very dangerous state.

Trindon Colliery, Durham.—W. Wilson, W. Savage, and H. Wind, were descending to their work at the same time that the engine was drawing a cage with tubs of coals up the shaft. When the coals had been drawn up about 15 fms., and the men consequently lowered that distance, the rope attached to the coal-cage broke; and a portion of it having fallen from the drum on which it was being wound, struck the engineman and stunned him, so as to deprive him of command of the engine; the cage containing the men then (having nothing to balance the weight of it, and the engineman not being able to ap-

proach the handles of the engine in consequence of the lashing of the rope, ran at a fearful rate down the shaft, and the men were precipitated from it, and fell into the "cump" hole at the bottom of the shaft. Their bodies were recovered after the lapse of a few hours; but, as might be expected, totally devoid of life. The rope had only been used about nine months, and was considered strong and safe at the time of the accident.

Wheal Grumbler.—J. Shaw was seriously injured by a fall. **Wheal Trelawney, Menheniot.**—As David Higman was ascending the ladder with two picks in his hand, he fell into the shaft, a depth of 17 fms, and was killed on the spot.

Attempt to Blow-up a Coal Mine.—Edward Swift, of Tarbock, Collier, a boy 17 years of age, was charged with wilfully damaging certain workings underground, in a coal mine belonging to Richard Willis, Esq., of Whiston. It appeared, from the evidence of the underlooker, that the defendant was employed at the mines as a coal-getter, and was working in that part of the pit where he made the attempt. His only excuse was, that he wished to be employed in some other part of the mine, because he could not earn wages enough where he was. The defendant was seen by a boy to bore holes in three different parts of the mine, ram them with powder, to which he applied a light. An explosion, which caused part of the roof of the mine to fall in, was the consequence, and damage to the amount of £1. was done. Defendant was ordered to pay the amount of damage and costs by instalments of 2s. 6d. per week, or, in default, to be committed.—*Liverpool Mercury.*

Bedford—Antiracite Mines.—The preliminary meeting of the shareholders in this undertaking was held at Binney's Commercial Inn, on Thursday, when the company was formed, and it was determined to work the mine in 64 shares of 100l. each. The shares had all previously been taken, and a great number of applicants for shares were obliged to be rejected. A call of 20l. per share was made.—*Falmouth Packet.*

New Boiler-Plate Works, Cwmbrân.—On Tuesday last, the inhabitants of Llanantarn and Llanvreccha were agreeably surprised by the sounds of a forge hammer, issuing for the first time from these works. The sounds of the hammer were speedily followed by the loud acclamations of the assembled workmen, and the usual discharges of the firemen's artillery. The engine went off in capital style, and nothing could have been better than "the start." In the evening, the workmen (120) were plentifully regaled by the proprietors, to whose health, and the success of the works, repeated bumpers were quaffed.—*Monmouthshire Merlin.*

Submarine Telegraph.—The submarine telegraph was laid across Portsmouth harbour to-day (Saturday), from the watering island in the dockyard to the steps at the Royal Clarence-yard. The former experiments were repeated, and they fully confirmed the fact that one wire, as prepared by Messrs. West and Taylor, is sufficient for electric purposes under water. Several of the principal officers of the dockyard, including the heads of the engineering department, were present during the trials, which proved most satisfactory. The experiments were conducted under the superintendence of Mr. Hay.

MEETINGS OF SCIENTIFIC BODIES DURING THE WEEK.

Society.	Address.	Day.	Hour.
Asiatic	14, Grafton-street	Saturday	2 P.M.
Entomological	17, Old Broad-street	Monday	8 P.M.
Chemical	Society of Arts, Adelphi	Monday	8 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Pathological	21, Regent-st., Waterloo-pl.	Monday	8 P.M.
Medical and Chirurgical	53, Berners-st.	Tuesday	8 P.M.
Zoological	11, Hanover-square	Tuesday	8 P.M.
Syrio-Egyptian	71, Mortimer-st., Cav'ndish-sq.	Tuesday	7 P.M.
Society of Arts	Adelphi	Wednesday	8 P.M.
Graphic	Thatched-house Tavern	Wednesday	8 P.M.
Microscopical	21, Regent-street	Wednesday	8 P.M.
Pharmaceutical	17, Bloomsbury-square	Wednesday	9 P.M.
Etymological	27, Sackville-street	Wednesday	8 P.M.
Literary Fund	73, Great Russell-street	Wednesday	3 P.M.
Royal	Somerset-house	Thursday	4 P.M.
Antiquaries	Somerset-house	Thursday	8 P.M.
Royal Society Literature	4, St. Martin's-place	Thursday	4 P.M.
Medico-Botanical	22, Sackville-street	Thursday	8 P.M.
Astronomical	Somerset-house	Friday	8 P.M.
Royal Botanic	Inner Circle, Regent's-park	Saturday	3 P.M.
Westminster Medical	27 A, Sackville-street	Saturday	8 P.M.

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.
MONDAY.—Adair's Main 16—Carr's Hartley 15—Clavering's Tanfield 14 9—Chester Main 16 2—Davison's West Hartley 16—Dean's Primrose 16 6—Grace's Hartley 14—Hedley's Hartley 13 to 13 3—Hastings' Hartley 15—Hollywell Main 19—Morrison's Hartley 16—Nelson's West Hartley 16—New Tanfield 16 6—Old Pontop 15—Original Tanfield 16 6—Ord's Redhouse 15—South Wales 15 3—Tanfield Butes 16 6—Tanfield Moor 16—Twissell Main 16 2—West Hartley 16—Wylam 17 to 18—Wylam's End Acon Close 17 6—Bell and Robson 16 6—Bewick and Co. 18—Bell and Brown 18—Burnhope 17 3—Clemet 16—Clarke and Co. 15 6—Denison 17—Gosford 17—Heaton 17 9—Hilda 17 9—Howden 17 6—Hutspur 17 3—Killingworth 17 3 to 17 6—Northumberland 17 to 17 3—Pearson 17—Riddell's 17 6—Willington 17—Wharfedale 17 3—Eden Main 18 3—Belmont 18 6—Brady's Hutton 19 3—East Hutton 17 9 to 18—Finchale 17 6—Harwell 20—Hutton 19 6—Lambton 19 3—Lumley 18—Penbent 19—Russell's Hutton 19 3—Shotton 18 6—Stewart's 19 3—Whitwell 17 6—Cassop 18 9 to 19—Hartlepool 19 3—Heugh Hall 18 6—Kellor 19—Ludworth 19 3—South Kellor 18 6—Thornley 18 3—Adelaide Tees 19—Cawdon Tees 17 9—Gordon 16 to 16 6—Seymour Tees 18 6—South Durham 18 3—Tees 19 3—Copen Hartley 15—Derwentwater Hartley 15—Howard's West Hartley 15—Sidney's Hartley 15—Newcastle Hartley 14—Ships at market, 38s.

WEDNESDAY.—Adair's Main 16—Carr's Hartley 15—Chester Main 16—Davison's West Hartley 16—Grace's Hartley 14—Hedley's Hartley 13 6—Hastings' Hartley 15—Nelson's West Hartley 16—New Tanfield 16 6—Old Pontop 15—Original Tanfield 16 6—Ord's Redhouse 15—Stewart's Hartley 15—Tanfield Moor 16—Townley 17—West Hartley 16—Wylam 16 3 to 16 6—Wall's End Barnard's 16 6—Burnhope 17—Clemet 16—Clarke and Co. 15 6—Denison 17—Gosford 17—Heaton 17 9—Hilda 17 9—Howden 17 6—Hutspur 17 3—Killingworth 17 3 to 17 6—Northumberland 17 to 17 3—Pearson 17—Riddell's 17 6—Willington 17—Wharfedale 17 3—Eden Main 18 3—Belmont 18 6—Brady's Hutton 19 3—East Hutton 17 9 to 18—Finchale 17 6—Harwell 20—Hutton 19 6—Lambton 19 3—Lumley 18—Penbent 19—Russell's Hutton 19 3—Shotton 18 6—Stewart's 19 3—Whitwell 17 6—Cassop 18 9 to 19—Hartlepool 19 3—Heugh Hall 18 6—Kellor 19—Ludworth 19 3—South Kellor 18 6—Thornley 18 3—Adelaide Tees 19—Cawdon Tees 17 9—Gordon 16 to 16 6—Seymour Tees 18 6—South Durham 18 3—Tees 19 3—Copen Hartley 15—Derwentwater Hartley 15—Howard's West Hartley 15—Sidney's Hartley 15—Ships at market, 130.

FRIDAY.—Adair's Main 16—Chester Main 16—Earsden Main 16 6—Grace's Hartley 14 3—Hastings' Hartley 15 3—Ord's Redhouse 15—West Hartley 15 3—Wallbottle Hartley 15—Wylam 16 3—Wall's End Acon Close 18 3—Barnard's 17—Bewick and Co. 18 3—Clarke and Co. 15 6—Hutspur 17 3—Killingworth 18 3—Northumberland 17 6—Eden Main 19 6—Brady's Hutton 19 9 to 20—Caradon 19 6—Cassop 19 6—Hudson's Hartlepool 19 3—South Kellor 18 6—Adelaide Tees 19 3—Brown's Deaneley 18 6—Richardson's Tees 17 9—Seymour Tees 18 9—Tees 20—Copen Hartley 15 3—Sidney's Hartley 15 3—Ships at market, 53.

THE DUFFRYN WELSH COAL.

SHERIFFS' COURT, RED LION-SQUARE, DEC. 3.
WILLIAMS v. CHAPLIN AND OTHERS.—In this case, which had been created some interest in the coal-market, and which occupied the court more than five hours, the plaintiff, a coal-merchant at the Regent's Canal-bank, sought to recover of the defendants, as directors of the London, Westminster, and Vauxhall, Iron Steam-boat Company, the sum of 784l. 8s. 10d. for coals supplied.

Mr. Bodkin and Mr. Hawkins were for the plaintiff, and Mr. Bramwell for the defendants. The learned counsel (Mr. Bodkin), in stating the case, informed the jury, that the defendants having suffered judgment to go by default, thereby admitting their liability, the only question for their determination was one of amount. The plaintiff was the sole agent in London for the sale of the Duffryn coal, which (as is well known to our readers) came from Wales, and which was peculiarly adapted for the purposes of steam navigation on the River Thames, as it emitted less smoke than other coal, and gave a more intense heat. For some years the London and Westminster Iron Steam-boat Company, were supplied at 23s. 6d. per ton; and the contract continued until Mr. Pegg, and another, who were coal-merchants, were admitted into the direction of the company, and then the supply by the plaintiff ceased. The cessation occurred in June last, up to which time the plaintiff had supplied coals of the description stated, "Duffryn Welsh coal," amounting to 3000l. worth per week. It, however, happened that the coal afterwards supplied for the boats was not of the quality required, and that the several boats performed each one journey less a day than before, by which a loss of 1200l. a day was sustained. In the following month, the plaintiff was again requested to send the Duffryn coals, and he executed the orders at 22s. 6d. per ton, and a bill for 5000l. was signed by three of the directors, and afterwards paid. A remark was made by Mr. Cattans (of the firm of Cattans and Fry), on the charge 22s. 6d. per ton for the same coals as had been supplied at 23s. 6d., and he was informed that in future they would be charged for at the rate of two guineas per ton. From the 1st of August to the 12th of the month, 290 tons were supplied, for which the company were charged, not two guineas as they were informed, but 40s. per ton, and on this sum the jury would understand that the struggle was to arise. The price was, no doubt, a very large one—arising from the scarcity of the particular coal, and the demand made for the same. A bill was drawn for the coals so supplied, and two of the directors had accepted it, but the third declined, and the bill was left in his possession, and had not been returned to the plaintiff. It had been proposed, on the part of the company, to refer the case to arbitration; but the plaintiff had refused, and preferred submitting his case to a jury, feeling confident that they would award the sum he claimed—viz., 784l. for coals supplied at 22s. 6d., and at 40s. per ton, with the expenses incurred in the delivery of the goods.

The clerk to the plaintiff, Mr. Cripps, was the principal witness, and he confirmed the statement of the learned counsel.

Mr. BRAMWELL addressed the jury for the defendants, on the ground that the price charged was unreasonable, and that the plaintiff had offered to supply the company with coals at the rate of 22s. 6d. under a contract for one year, which contract was not, however, agreed upon. A number of witnesses were called for the defendants, among them Mr. Cattans, who was present when Mr. Cripps applied for the payment of the demand. Several coal-factors stated the prices Welsh coals fetched in July and August in the present year. None, however, had the Duffryn coal; and a factor's clerk, on being asked whether 40s. per ton was a fair sum, said, he supposed that it must be given, if it could not be obtained for less.

Mr. BODKIN, in his reply, insisted that no defence had been given to the action, and asked the jury to assess the damages at the amount claimed. The learned counsel made some remarks on the manner in which the plaintiff had been used in regard to the bill of exchange, which had been signed by two of the directors, and then retained; it was only another instance of the same conduct, that men in their collective capacity as a company often did things which in their individual condition they would shrink from.

The learned JUDGE SUMMERS placed the case before the jury as one in which they would assess the damages, having reference to the marketable value of the Duffryn coal. It was for them to say, looking to the evidence, whether 22s. 6d. and 40s. per ton was a reasonable charge for coal which had been supplied originally at 23s. 6d. per ton.

The jury retired for a few minutes, and then assessed the damages at the full amount claimed—784l. 8s. 10d.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning, Eleven o'clock.	
Bank Stock, 7 per Cent., 206½	Belgian Bonds, 4½ per Cent., 50
3 per Cent. Reduced Ann., 94	Dutch, 2½ per Cent., 60
3 per Cent. Consols Ann., 94½	Brazilian, 5 per Cent., 64½
3 per Cent. Annuit., 94½	Chilian, 6 per Cent., 32½
3½ per Cent. Ann., 96	Mexican, 5 per Cent., 32½
Long Annuit., 9 15-16	Spanish, 5 per Cent., 26½
India Stock, 10½ per Cent., 256½	Disco Deceased, 16½
3 per Cent. Consols for Acc., 95½	Portuguese, 4 per Cent., 39½
Exchequer Bills, 1000l., 7 10 pm.	Russian, 5 per Cent., 111½

MINE.—The mining share market has been unusually animated during the past week—many and large have been the transactions in some mines; whilst the multiplicity of improvements in the mining property of Cornwall and Devon, appears to be giving an impetus to large and influential purchasers. Perhaps at no period within our memory do we remember the mines generally presenting so flourishing and satisfactory a position as at the present time. For several weeks past letters have daily advised us of cheering alterations, or important discoveries, having been made in the several districts of these two great mineral counties; although we have only noticed the mines under the head of the western and eastern districts (the latter including the mineralogical deposits of south-western Devon), still we find the middle and north of Cornwall claiming deserved attention. We, certainly, invite no man to speculate in schemes of hazard and danger; but we firmly believe, when judgment and laudable caution are duly exercised, that no investment, attended with any degree of uncertainty, offers a more profitable source for the employment of capital. When we look at our share list, and notice the quotations of even profitable and dividend-paying mines, we find them, in many instances, from 10 to 30 per cent. lower than they were 12 or 18 months since—this depreciation in the price of shares is truly attributed to the railway mania, which affected all kinds of stock or property, although it in nowise injured their value—for to bond fide holders, or those who purchased for an investment, the influence was felt by sellers only. The properties, to which we refer, have become more valuable in their products, while the shares are at a lower price.

We perceive, on reading our regular weekly reports, discoveries, or improvements, have been made in several mines since our last. In the Great Devon Consols we find a discovery of considerable value; and, on Monday last, a dividend was payable of 5120l., being 5l. per 1024th share, for the last two months; and, during the week, a share has been sold at 5000l.—thus giving a value to the mine of above half a million of money.

In West Wheel Maria, the size and general appearance of the lode in the new or whin shaft has caused a great demand for these shares, at an advanced price; and upwards of 150 shares have changed hands since our last; whilst her neighbour, Wheal Fortescue, has also advanced; Lamherose Wheal Maria (another neighbour) has been in demand. Wheal Concord is much improved; several of her levels are now returning rich stores of lead. Devon and Courtney is reported well. Crossing the Tamar, we find Gunnis Lake, Hawkmoor, and Holmbush, looking better; whilst the Callington Mines sampled for the past month 108 tons of rich silver lead ores, being her greatest sampling, and a dividend was declared, on Thursday, of 12. per share, being the third dividend, with every prospect of paying six dividends of the same amount for the next 12 months. In the neighbourhood of Liskeard, we notice Trehan sampling her first parcel of 36 tons of silver lead. Trelawney improving, and Wh. Norris likely to emerge, with Wheal Gill cutting a course of ore at the 40 fms. level. Pursuing our glance farther west, Trewallack, Wheal Michell, St. Austell Consols, East Wheal Rose, Wheal Rose, West Wheal Jewel, Comfort, South Francis, Condurrow, Tryphens, Treleigh, Botallack, are represented as rapidly improving.

Transactions in the following mines have been effected during the week:—Devon Consols, West Wheal Maria, Fortescue, Condurrow, Lewis, West Wheal Jewel, Trewallack, Wheal Gill, Comfort, Holmbush, Devon and Courtney, Wh. Concord, Lamherose, Wheal Maria, Trothell, Mendip Hills, East Crowndale, Trehan, West Wheal Treasury, Maria (Tin Mine), West Providence, Baristown, and East Croft.

In foreign mines little has been done during the week—all parties appear to be waiting the arrival of the Mexican mail, due next week; the general improvement in these mines, advised by the last packet, has created a considerable degree of anxiety for a confirmation of the anticipated dispatches, and we may reasonably expect much business being done on the arrival of the mail.

RAILWAYS.—This has been a busy week in the share market, and some very extensive transactions have been done at improved rates. The demand for Manchester and Leeds has continued unabated, and the price has again risen; old Leeds, which were last week at 22 to 24, have been done at 26 to 28. There has also been a good demand for Shrewsbury and Birmingham, at improved prices; and the Vale of Neath, which has advanced 12. per share; North Staffordshire have been firm, and a good business doing at 41. premium; old shares have also experienced a similar improvement, particularly for Midlands, at a rise of 41; London and North Western, Great Western, South Eastern and Birmingham and Oxford, are looking up. At Birmingham, Bristol, Manchester, Leeds, Hull, and Glasgow, the markets have also borne a decidedly firmer appearance. This improvement may be greatly attributable to the favourable settlement of the account on Monday, and a general desire on the part of money-holders to invest in well established and promising lines.

MEETINGS.—Leeds and Thirk: an extraordinary meeting was held on Monday, at Leeds, for the purpose of affixing the company's seal to the register of shareholders of the branches and extensions of the last session, and to authorise applications to Parliament for certain alterations and extensions.—*Edinburgh and Perth:* a meeting was held on Monday, at Edinburgh, to determine whether the company should be dissolved, which was carried by a large majority.—*Lynn and Ely:* a general meeting was held at the London Tavern, on Wednesday, for the purpose of sanctioning a conditional agreement entered into for leasing the line in perpetuity to the Eastern Counties Company. The chairman stated, that the agreement was for 5 per cent. upon the whole capital of the company, for three years from the opening of the line, and a minimum of 6 per cent. ever after, the dividend being always 2 per cent. less than that of the Eastern Counties. Mr. Wheeler could not approve of any arrangement which would make their dividend contingent upon the fortunes of the Eastern Counties, as the directors of that company had not treated them as well as they ought to have done under all circumstances; neither did he think that the recent conversion of stock from 14l. 16s. to 200l. ought to have taken place without the proprietors in the Lynn and Ely having been informed of the fact: the best course would be not to fetter the directors, but to return the agreement, and submit to the directors of the Eastern Counties a proposition, the basis of which should be a fixed annual dividend, payable under all circumstances. Mr. Lacy (the deputy-chairman) entirely disapproved of their binding themselves to endure the liability of a fluctuating dividend in any hands but their own: if they were to have an uncertain dividend, let them have it themselves: he differed with his colleagues in the direction, as to the selling of the line, and the terms of the agreement, as he was convinced that it would ultimately pay 10 per cent. A resolution confirming the agreement was proposed, and, after a long discussion, unanimously rejected; and in its place one was agreed to, authorising the directors to renew the negotiations with the Eastern Counties, on the basis of a fixed rent, of 7½ per cent. in perpetuity. Another was also agreed to, empowering the directors to take the necessary steps to assist in applying to Parliament next session for bills authorising the construction, by the Lynn and Ely Company, from Wisbeach to Spalding and Holbeach, and from Ely to Bury St Edmunds, as well as docks at the port of King's Lynn, with a navigation or aqueduct from such docks to the River Nar, in Norfolk. The business relative to the raising of the sums of 118,000l. part of the 120,000l. authorised by the Ely and Huntingdon Act, by the issuing of 10,000 shares of 9l. each, and 108,000 shares of 2l. each, was postponed.

Ely and Huntingdon: A special general meeting of proprietors was subsequently held in the same place, and for the same purpose. The chairman considered the terms offered by the Eastern Counties were very inadequate to the value of their property; and he, therefore, hoped they would follow the example of the former meeting, and reject them unanimously; but still no doubt the East Anglian lines would ultimately pay 10½ per cent.; they still a bird in the hand was worth two in the bush, and he should not object to the 7½ per cent.; the same resolutions agreed to by the former proprietors were carried.—*Lynn and Dereham:* was then held; and Mr. Lacy, having resumed the chair, the resolutions agreed to at the former meetings were passed unanimously.—*Worcester, Warwick, and Rugby:* was held at the London Coffee-house on Thursday, to determine whether the company should be dissolved; H. G. Ward, Esq., M.P., the chairman, said, the first business to be transacted was the appointment of scrutineers. This having been done, he reminded the meeting that, in January last, the assembled shareholders passed a resolution for amalgamating with two competing companies (the Rugby, Warwick, and Worcester, and the Worcester and Warwick) on equal terms, and determined that the best plans should be selected from those of the three companies; subsequently, the amalgamated companies fell into the hands of other engineers, and; in the end, it was found impossible to pass the Standing Orders: matters had been complicated by a suit in Chancery, and it would be necessary for each of the three companies to return a certain sum to meet possible legal liabilities; the directors had all retained their original amount of scrip, and would be at least equal sufferers with the other shareholders; he, subsequently, concluded by moving "that the company be dissolved." The secretary then read the cash account; there was a balance in the hands of bankers and in office, 6790l. 3s. 9d.—making a total on the credit side, to balance the debit, of 44,524l. 8s. 1d.; there remained 6790l. to be divided among the shareholders, which would give about 7s. 6d. per share. The chairman said, he expected to be able, out of the reserved fund, to divide 2s. 6d. per share more before finally winding up the concern. Mr. Spackman addressed the meeting at considerable length in condemnation of the course which had been pursued by the committee, who proposed that they should accede to a dividend of 7s. 6d. per share out a de-

posit of 2l. 2s. to which he would not consent; and he should hold Mr. Mann as the original promoter, and the solicitors appointed to act for the company, responsible for their conduct: he concluded by moving, as an amendment, that the company be dissolved, and that the dissolution be declared an act of bankruptcy. Mr. Davis seconded the amendment, which was supported by several shareholders. The scrutineers having taken the number of votes, found that it was not sufficient to constitute a meeting under the Act; and, on the motion of the chairman, it adjourned till Wednesday at 12 o'clock.—*Chester and Birkenhead:* a special general meeting of this company was held on Thursday last, at Liverpool, to consider certain proposals for the sale of the line and other property, to the Birkenhead, Lancashire, and Cheshire Junction Railway Company, and for an amalgamation with it upon the following conditions:—That each 50l. share in the Chester and Birkenhead should be considered as worth 55l., and that interest shall be paid from 1st of January, 1847, in the estimated amount of the said respective shares at the rate of 5 per cent. for two years, and 6 per cent. per annum in the third year. After some discussion, a resolution was passed, approving of the signing of the notice, and empowering the directors to carry out all requisite arrangements; the meeting was very fully attended, and a vote of thanks passed to the chairman.—*Birkenhead, Lancashire, and Cheshire Junction:* an extraordinary meeting was held at Birkenhead, when the agreement adopted at the above was read over and passed, *acm. con.*

LEEDS, THURSDAY.—There has been less business doing this week, and prices, in many cases, are not so firm. The Leeds and Thirk Company will issue 6 per cent. preference shares, to provide for the contemplated extensions—in the proportion of one 50l. share to each of the present 50l. shares; the new stock came out at a premium of 35s., but is today at 1½ pm. Malton and Driffield, and Sheffield, Rotherham, and Goole, have both advanced considerably; as also all classes of Manchester and Leeds stock.—Mr. Houldsworth's speech at the special meeting last week being considered favourable to the future prospects of this stock. **TOTAL, BARF, & PLINT.**

HULL, THURSDAY.—During the past week our market has evinced considerable improvement; and, although but a limited business has been transacted, it has been entirely owing to the paucity of stock offered. North British, North Stafford, York and Newcastle, and York and North Midland preferentials, have been in great request—the latter to-day at 10½ pm.

THAMES TUNNEL COMPANY.
The number of passengers who passed through the Tunnel in the week ending Nov. 28, was 14,450; amount of money, £60 5s. 0d.

NEW SHARE & MONEY MARKET, ROYAL EXCHANGE, LONDON.

Shares are advertised free of charge, and only one party has to pay in each transaction. Parties wishing to purchase shares are not required to deposit the cash, but must give a satisfactory reference in London, and receipts sent by return of post for shares deposited. **SHARES FOR SALE THIS DAY, Dec. 4, offered by the owners as under:—**(The public can purchase any of these shares without paying commission).

Shares.	Per Share.
Buckinghamshire Serp.	at £2
40 Belfast and County Down	0 5 6
30 Exeter, Yeovil, and Dorchester	1 10 0
3 Eastern Counties York Extension	3 17 6
5 Edinburgh and Glasgow halves	21 0 0
23 Great Northern, London and York	2 6 0
10 Great Leicester and Munster 7l. 10s. paid	3 10 0
30 Great Western of Bengal	0 8 0
40 Great North of India, at 5s. 6d., 3s. at 6s., 30 at	0 6 6
30 Great Indian Peninsula	0 6 6
15 Great Southern and Western of Ireland	29 0 0
20 Irish North Midland remnants	0 1 6
33 London and South Western, 40l.	49 0 0
30 Madras, Nellore, and Arcot	0 4 6
20 Neptune Marine Insurance	9 10 0
34 Norfolk Estuary	0 10 0
50 Oxford and Salisbury	0 8 6
20 Rugby, Derby, and Manchester, remnants	0 8 0
50 Southampton, Manchester, and Oxford Junction	0 6 0
15 Sheffield, Buxton, and Leek Potteries, remnants	0 2 6
35 Western Gas Light, 3l. paid	2 0 0
10 Ditto, 3l. paid	3 10 0
15 Reading, Gullford, and Belgate	0 18 0
40 Belfast and County Down	0 5 0
14 Great Northern, 3l. 10s. paid	3 5 0
40 Cambridge and Lincoln Extension, remnants	0 10 0
30 Midland, Barnsley, Sheffield, and Dewsbury, remnants	0 10 0
20 East Indians	0 12 6
15 Commercial and General Life Assurance	1 10 0
40 Gloucester, Abergwyth, and Central Wales	1 0 0
31½ London and Birmingham Extension	1 15 0
1 London and Birmingham Hotel, Euston-square, paying 6 per cent	25 0 0
30 Newry and Enniskillen, 7l. paid	1 0 0

SHARES WANTED, THIS DAY.
(The public can supply any of these shares without paying commission).

Shares.	Per Share.
1 Aberdeen	at £19
100 Armagh, Coleraine, and Portrush	0 5 6
5 Asturian Mine, 6l. paid	3 10 0
100 Bandon and Bantry	0 6 9
12 Chester and Holyhead	25 0 0
10 Commercial Gas	5 7 6
300 Cork and Waterford	0 1 9
800 Essex and Suffolk, remnants, at 3s. 3d., and 500	0 2 6
1000 Exeter, Dorchester, and Weymouth, remnants	0 1 0
1 Great Western Fifth	3 10 0
50 Great Indian Peninsula	0 2 0
50 Italian and Austrian	2 10 0
7 Kent Waterworks	30 0 0
460 London and South Essex, remnants	0 2 9
30 London, Bristol, and South Wales Direct	1 0 0
25 London and South Western, 50l. paid	63 0 0
10 London, Salisbury, and Yeovil	1 7 5
100 Luxembourg, 4l. paid	0 12 6
4 London and South Western, 50l. tenths	5 10 0
10 Manchester and Southampton, 1847	1 6 6
2 North Staffordshire	5 9 6
50 Newry and Enniskillen, 7l. paid	0 10 0
500 Northumberland and Lancashire, remnants	0 2 6
75 Oxford, Witney, and Cheltenham	0 8 0
500 Rugby and Huntingdon, remnants	0 6 0
1 Reversionary Interest Society (King's Arms Yard)	100 0 0
50 Shropshire Unions, scrip	1 15 0
50 Shrewsbury and Hereford, remnants	2 9 0
25 Union Bank of London, at 11l. 8s.	11 6 6
490 Worcester, Hereford, Ross, and Gloucester, remnants	0 2 3
50 Waterford, Wexford, Wicklow, and Dublin	0 6 0
50 Yorkshire and Glasgow Union	0 17 6
10 Caledonian Halves	2 5 0
10 Eastern Counties, York Extension	3 10 0
10 Shropshire Union, registered	1 12 0
50 Manchester, Buxton, and Matlock	3 2 0
10 Ditto, ditto, 1847	8 0 0
50 Oxford, Newbury, and Andover, remnants	0 3 6
10 Cork, Black Rock, and Passage	0 5 0
50 Anglo-Belgian	1 10 0
2 Eastern Counties Consolidated	23 0 0
3 London and South Western, 50l.	62 0 0
50 South Staffordshire Serp.	prem. 0 17 6
50 Taw Vale Extension	0 12 0

The public are particularly requested, in sending shares from the country, to enclose them in a registered letter, addressed to Stevens, Hansard, & Co., Transfer Office, 3, Royal Exchange.

RAILWAY TRAFFIC RETURNS.

From these returns, it will be seen, that the amount of traffic for the last week, on nearly 2760 miles of railway, was 134,838l., thus accounted for—67,552l. for the conveyance of passengers only, 37,084l. for the carriage of goods, and a remainder of 29,511l. for passengers and goods together, not respectively apportioned; being an increase over the corresponding week of last year of 16,618l.

evaporation was superinduced, or the working of the system, brought under notice by Mr. CLASSEN, we are unable to speak."

It is evident, from these facts, that peat can be simply and effectually dried; and, therefore, peat charcoal can, without doubt, be made as dense and pure as wood charcoal. The ironmaster of England has, consequently, within his reach, that which will enable him effectually to compete with foreign iron, and drive it totally from our market.

We must not conclude our present remarks, without offering our meed of praise to Mr. ROGERS, for the talent and research he has exhibited, in his valuable publication. We are satisfied, from what it sets forth, that England will be greatly benefitted by the use of Irish peat fuel; while Ireland will be helped out of her misery, by the introduction of English capital. The detail, for carrying the measure into effect, is singularly simple, and without any risk, while the returns appear to be more than ample—in fact, the whole proposition exhibits the result of careful investigation, guided by evidently deep thought and intellect, and a thorough knowledge of the evils of Ireland, as well as her capabilities.

We shall return to this very interesting subject, which, we are happy to find, occupies the attention of so many of our contemporaries, as well in France as England. Its merits cannot be too widely disseminated.

Our candid antagonist, the *Moniteur*, in its Numbers of the 19th and 22d of November, in quoting the observations we made on the Government contracts for British coal, for the use of the Post-office Mail Steam-Packets at Calais, Marseilles, the Mediterranean, and the Levant, and also by the Minister of Marine and Colonies for the French armed steamers cruising off the coast of southern and western Africa, for the suppression of the slave-trade, conjointly with Great Britain, reluctantly is obliged to concur in what we have always stated, and substantiates that the coal mines of France are of that description of bitumen not at all suited for steam navigation, although it may do for other purposes, such as railways, forges, foundries, glass furnaces, gasometers, and manufactories, where inferior fuel can be used. Our esteemed contemporary does not contradict our assertions, that the consumption of English coal is annually greatly on the increase in France, but accuses us with the wish of seeing the import duties on coal, as well as iron and machinery, abolished, or so reduced as to throw open their ports to British produce, to the total destruction of their coal and ironmasters. We are not so national or absurd as to expect the Government to entirely throw open the ports to the free importation of our industry, to the detriment of the mining and commercial interest of an enterprising nation like France; but what we stated we should wish to see, is a modification of such duties, which, we feel convinced, would not only be the means of creating a greater commercial intercourse between the two countries, but be beneficial to both parties. The *Moniteur* has become more moderate and candid, as, in quoting our article of the 21st, in its Number of the 29th ult., it declares itself the advocate of protectionism, but not prohibitory absolutism, as it is only desirous to see the industry of France so protected by duties on foreign produce as not to prejudice her own exertions to compete with other nations; but it still maintains that, notwithstanding the *exposé* of M. FAUVELLE of the monopoly of the ironmasters, and their incapacity to meet their contracts, the forgemasters are fully able, not only to supply a sufficient quantity of iron rails, chairs, and all the necessary material for the railways now being constructed, but to be carried out next year—and that, consequently, there is no urgent necessity for British or any other foreign iron or machinery being allowed to enter at a reduced duty; and that the coal proprietors, &c., can always meet the demands without the Government making any alteration in favour of the importation of coal from Great Britain at a moderate duty. We cannot help smiling at this tenacity in upholding the iron and coal trade monopoly by arguments that are utterly at variance with the facts we have, and are constantly giving to the contrary. If there be such an abundance of excellent coal in France, and that iron can be produced to any extent equal to that of England, how is it that the Government official journal has advertised contracts for both coal and iron—particulars of which appear in another column—if they could be procured so good and so cheap in the country?

Our anti-free trader denies the crowing of the "Gallic cock," as to the resources of the ironmasters; and cautions the French nation against "the flattering allurements of the claws of the British leopard, even although as soft as velvet—its only aim being to cause a universal free-trade system throughout the globe, to carry out its own ambitious commercial aggrandisement." The *Moniteur* must now feel convinced that the arguments we have ever set forth in the columns of the *MINING JOURNAL* as to the progress of free-trade, and that the French Government would ere long listen to the voice of justice, and study the interest of the nation at large, in preference to that of the monopolising few, are on the point of being verified; and we heartily congratulate a wise King, and an experienced administration, in issuing the recent Royal ordinance, respecting the modification of the tariff or Custom duties on the importation of foreign produce into France, which will, without doubt, prove highly beneficial to her relations with other countries. In this alteration, we see a favourable change in the commercial policy of France; and, although it does not go to the extent we might have wished, it shows a commencement of what may be expected hereafter—as we are well aware that an important measure like the entire reconstruction of the tariff of a nation like France, where there are so many interests to study, cannot be achieved at once; and it is only by degrees that the Ministers of Commerce and Finance rely upon gaining a victory, which has caused the downfall of previous administrations. The march of railway speculation and steam navigation has made within the last few years so rapid a progress, that never could have been anticipated a quarter of a century ago; and although France, we must acknowledge, is a rich mineral country, the working of her mines, both coal and iron, has not been carried on to that extent to allow the masters of either to meet the sudden exigencies caused by this revolution in the demand and increased consumption of both. We know not how our protectionist champion, the *Moniteur*, and his party, will relish this ordinance, as it proves that the day is fast approaching when a most wonderful change will take place in France, and this the monopolisers have in a great measure to thank themselves for. If the coal and iron proprietors had been less selfish, by charging the most exorbitant prices, and evincing a bad faith—or, to say the least, a great delay—in fulfilling their contracts, there might not have been such an outcry against them, but they wished to ride the high mettled horse too far. They, and our contemporary, have striven their best to overawe the Government in their opposition to a reduction of the import duties, in which they have signally failed. As we have said above, we are glad to see this alteration in the tariff, which is a step that, no doubt, will lead to the importation of British coal, iron, and machinery, at a reduced duty, sufficiently protective to the French mining and industrial interests, and, at the same time, give satisfaction to the majority of the people, who will derive a great advantage by the moderate entry dues on this branch of British produce. The Government railway and shipping speculators have long been under the necessity of paying very high rates to the coal and ironmasters, even for articles of a very inferior quality, compared with those from England, Belgium, and Sweden, under the protective system—whilst, by a reform in the tariff, they will be able to carry out their grand undertakings without being under the yoke of an extorting clique of monopolists.

The *Débat*, *La Patrie*, and other Paris journals, as well as a ma-

jority of those in the departments, are the strong advocates for a reduction of duties; and although the modifications that the Minister of Commerce has made do not go to the extent they wish, still they see, like ourselves, that a great change is working in the international policy of France, in favour of a free-trade system, that will overthrow the combination, which has too long existed, by extensive capitalists, to fetter the progress of speculation and enterprise, and keep up high prices, and next to prohibitory import laws. In Belgium the same spirit is progressing; and we perceive that the members of the Chamber of Commerce of Liege, decided at their last meeting to petition the Government to reduce the duties on foreign cast metal from 5 fr. to 3 fr. per ton. This, emanating from so influential a body, situated in the most extensive and richest mining province of Belgium, will, no doubt, lead to an ultimate alteration also in the tariff of that country in favour of British produce—therefore, let the *Moniteur* console itself, and "crow" no more.

The courts of law at Westminster have, it appears, been fluctuating considerably of late in their judgment of the liability of provisional committee-men. The first (and, as it appears to us, the more accurate), holding of the courts was, that the members of such committees advertised, and doing the work of a company, were liable as any other single party is liable for credit obtained on property, which, as committee-men, they entered into possession of. A new circle of equity has now enlarged the legal horizon of the learned barons; and, instead of fixing the parties with a stringent and adhesive responsibility, *ex officio*, they have done all that a quorum of judges could do to shake provisional committee-men free of all responsibility whatever. Possibly, the atmosphere of Westminster Hall is clearer in November than it was in May; peradventure, the constellations peculiar to that face of the firmament, diffuse a more authentic light in the winter than in the summer solstice; but so or not, we think it in every sense an evil, that the decisions had should practically have decided nothing, and that the law of England in the case has received as yet no adequate exposition. In a community like this, where trade and merchandise is the life of our social existence, it is of all things important that the responsibilities of those taking part in our trading operations, should be accurately defined and faithfully maintained; and nothing, perhaps, can more effectually shake that confidence, which is the foundation of all healthy business, than a state of the law, leaving it doubtful whether the facilities for evading the just liabilities, into which persons have knowingly entered, are not as numerous as are the means of enforcing that liability.

Our correspondent, "New Red," at Macclesfield, whose letter, dated November 24, was inserted in our last Number, expressed surprise that nothing had been done respecting the introduction, into this country, of M. FAUVELLE's system of boring, in connection with mining purposes. We have ascertained that the Pennant Lead and Copper Mining Company immediately placed themselves in communication with that gentleman, with a view of trying his principle on their mine set, so as to determine at once the depth of the deposit of ore from the surface of the mountain, and the stratification to be passed through—thereby enabling the manager to make more exact contracts, as to the amount to be paid for driving per fathom; and not only reducing the expenditure of the company almost to a certainty, but furnishing very correct data for calculation, as to the period when the mineral itself would be reached. At all events, the experiments to be made will fully test the power and advantage of M. FAUVELLE's system, for the benefit of the whole mining community. The committee of this enterprising company deserve great credit for the prompt and bold manner in which they have acted. It shows they are not unmindful of the interests of the shareholders, and quite alive to, and watchful of, the many improvements going on in the mining world. Unfortunately, M. FAUVELLE is now superintending extensive works in Paris, and, consequently, cannot at present personally direct any undertaking in this country. The manager of his works, nevertheless, will be shortly in London, to confer with the Pennant Company, and make arrangements. Our correspondent, therefore, will have an opportunity, early in the spring at latest, of ascertaining, by ocular demonstration, if he thinks proper, of the efficiency and economy of the system in question, tried under every description of circumstances, inasmuch as the Pennant Mine set is situated in the most mountainous district of Merionethshire, close to the range of the Atrians; and, according to the different engineers' reports, contains almost every mineral stratification, with the exception of that of iron. Pennant forms a portion, or rather the commencement, of the celebrated and gigantic pass, between Dinas-Mowddwy and Bala, called Bwlch-y-Groes. The mountain is upwards of 1600 feet high, and the main adit, which has been in course of driving for some time, is situated nearly midway, about 800 feet from the summit, but is reached by a road so well engineered, that the most timid person may drive up without fear. M. FAUVELLE calculates that the cost of erecting his machinery will be 2000 fr., or 80*l*.; and the expense of working from 10 to 30 fr. (8*s*. to 25*s*.) per metre, according to the nature of the ground. M. FAUVELLE, we understand, expresses himself most confident of the successful and economic issue of his system to all purposes, which have for object the reduction of mineral knowledge to almost a certainty.

A gentleman (Mr. BEAT) residing at Godmanchester, Huntingdonshire, claims a priority of invention of the system adopted by M. FAUVELLE, and has long since taken out letters patent to secure his rights thereto. With him also have the committee of the Pennant Company been in correspondence. Mr. ROBT. BEAT, it appears, however, has other pursuits and occupations, and declines to superintend any undertaking; but, so far from wishing to monopolise the application of his invention, expresses himself ready and willing to grant permission for its use; and in the most disinterested and liberal-minded manner, refers the committee of the Pennant Company to M. FAUVELLE for information as to, and for assistance in, its adoption to all purposes required, merely remarking modestly that the success which has attended M. FAUVELLE's experiments in France, added to his own, previous to obtaining a patent, fully prove the utility of the invention. This is the ebullition of feeling truly British, and shows Mr. ROBERT BEAT to be a gentleman as honourable as philanthropic, and one to whom M. FAUVELLE must feel most truly indebted for the compliment paid to his exertions, and the generous manner in which he is thus put forward to reap the principal benefit of the adoption of the principle; for be it the invention originally of either Mr. BEAT or M. FAUVELLE, the fact of the former having letters patent for this country, would, otherwise, wholly preclude the power of M. FAUVELLE to move in the matter.

As many persons may probably wish to witness these experiments, it may be well to mention that the Pennant Mines can be reached either from Bala or Dolgelly, through which the Chester and Barmouth mail passes daily, but this route entails a journey, in cars or on horseback, of 20 miles over the mountains. The Aberystwith mail, however, from Birmingham and Shrewsbury changes horses at the Peniarth Arms at Mallwyd, which is little more than five miles from Pennant. Here, moreover, is a most comfortable hotel, where cars and horses, and mountain guides, who speak English, can readily be obtained. Dinas Mowddwy, the "city of the mountains," is intermediate between Mallwyd and Pennant Mines. This place was one of the five lordships in Wales, which were independent, and paid no tribute to the Prince. It still retains many of its privileges, and has a mayor, recorder, and burgesses, with all the insignia of office. The former is a magistrate *ex officio*. In a recent number of the *Cuernarvon Herald*, an account is given of the election of the mayor for this year. The whole district is wonderfully beautiful and romantic, and fully repays the trouble of a visit. The two principal boundaries of the Pennant Mines set are waterfalls, stupendous and grand; but the locality having been difficult of access, until the establishment of the Aberystwith mail, it has not been much visited hitherto by general tourists, although it greatly surpasses, in every description of scenery, and traditional interest, many—indeed, most—of the places usually resorted to. The Worcester and Port Dynllaen Railway (proposed to be made by the Great Western Railway Company) will run within three miles of the Pennant Mines, and thereby render a visit to that part of the principality both easy and economic. Having mentioned the Pennant Company, it may not be uninteresting

to many of our readers to state, that in sinking a shaft for that company, called Oliver's shaft, a very superior description of china clay was discovered, within 15 inches of the surface, through which several fathoms have already been driven, without any change. It is quite solid, and so fine and pure, as scarcely to require washing. This, therefore, may yield a source of income wholly unlooked for by the shareholders, and the total absence of iron in the district is most materially in favour of the value of the clay. Some years ago, a similar description of clay was discovered on the property of Lord MORLEY, in Devonshire, which has since tended essentially to augment his revenue; and dinner services of china, made from clay discovered at Nant Garw, in Glamorganshire, about two miles from Cardiff, have been sold for 1000 guineas, so superior was the description of the raw material.

The recent and fatal explosion in the colliery pits of Mr. PARKER, at Oldbury, with the verdict of the jury, establishing the culpable negligence of the ground bailiff, and the memorial of the inhabitants of Dudley to the Government, imploring the interposition of the Legislature, with some measure calculated to limit and to lessen, for the future, such terrific casualties, were noticed at large in this *Journal* of the 21st and 28th ult. The jury to which the investigation of the circumstances was committed, have adopted a strong measure in delivering a verdict of manslaughter against the person charged with the underground supervision of the mine; but not a whit stronger than both the justice and necessities of the case absolutely claimed. Nineteen of our fellow-creatures have been suddenly hurried out of life by an accident which could not have arisen, had but a reasonable amount of care been taken, and diligence used, in the purification of the pits from the mass of inflammable gases, with which they are known to be at all times charged more or less; there is nothing more clearly made out by the evidence taken before the coroner, than that an adequate ventilation of mines, would be effectual to the neutralisation of both fire-damp and choke-damp so largely generated, and, therefore, so prevalent in those melancholy theatres of human labour. We must say, therefore, that the culpability of the man, by whose negligence so great a loss of life has taken place, is of a capital kind; and we hope he will be taught, that he cannot be allowed to practise such homicides with impunity. Although Mr. PARKER, himself the owner of this ill-kept and badly-ventilated mine, we apprehend he will see the propriety of preventing the lives of his workmen from being again so trifled with, and so squandered. If his property is not better looked after, and his pits made more fit for human occupation, the next time an accident happens in them, he will, in the just judgment of the public, be considered answerable for the consequences.

DISCOVERY OF COPPER IN WESTERN AUSTRALIA.—We have received a communication from Mr. Andrews, the Editor of the *Swan River News*, by which we learn that the discovery of coal in that colony, which we announced about a month since, has been followed by that of copper, which is represented as having been found on the lands of Mr. Davey, of Fremantle: one writer states, that he "had seen several specimens, and their solution in acids, of undoubted copper, brought down from the neighbourhood of the river Avon." Another report states that, "Mr. Davey had discovered copper ore lying on the surface of his land; he had smelted it, and obtained a small portion of copper, but was about to make further investigations when the news left."

AMERICAN ORDERS.—THE IRON AND BIRMINGHAM TRADE.—A correspondent, writing from Birmingham, on Thursday evening, says—"I am glad to be able to state, that the commercial letters received here on Tuesday, from America, by the *Britannia*, are of the most favourable description, and hold out prospects of such a demand for goods, as cannot fail to secure employment at remunerative prices in this district for some time to come. At all the houses, brisk orders have been received, with an assurance in some of the advices, that a very considerable increase in the demand may be fully expected in this and the month of January. At some establishments the orders for chains and heavy iron work is so great, that it is confidently asserted the manufacturers of these articles have now before them full twelve months' work. The most gratifying fact, however, connected with this demand is, that it is the result of low stocks in the United States, and not of speculation, which would render the returns doubtful. There is, therefore, but one thing which can at all interfere with these pleasing prospects—and that is an attempt to raise the price of the raw material above the standard of the competitive market. It is now confidently asserted, by some persons in this locality well acquainted with the iron trade, that a rise in prices will take place at next quarter day, and that this step will be fully justified by the increased foreign and home demand for manufactured goods, and the sustained railway consumption. On the other hand, I am authorised by one of the largest makers in South Staffordshire to state, that such an advance will not take place, but that the present prices will certainly be maintained. In proof of the sincerity of this opinion, my informant assured me he was prepared to take an order for 30,000 tons at the present prices; and if the opinions and actual position of the merchants and manufacturers be considered in the question, there would seem to be good reasons for the adoption of this course. A commercial letter now before me, from a large American house, says—"I send you an order for bar iron, at the quotations of the 19th of October (the first after quarter-day); but if the price advances as high as 10*s*. per ton, above this quotation, please omit the present order." Added to this, the universal opinion of all the merchants is, that if there is no advance, there will be a greatly increased demand for iron and made goods; but that, if there is an advance, the demand will inevitably be curtailed. Knowing the importance of this question at the present moment to a large body of commercial men, I have collected the best information I could upon the subject."

MR. NEVILLE'S IRON BRIDGE FOR RAILWAYS.—On Saturday, some new tests were applied to the iron bridge, invented by Mr. Neville, and erected at the Brussels terminus of the Northern line. The experiments were instituted at the desire of the Belgian Government, and were directed by a commission composed of engineers of the state. At first, the strength of the bridge was tested by an engine and tender, followed by four waggons laden with 5000 kilogrammes, the weight of the carriages being 2500 kilogrammes; after which, another train, of the same weight and length, passed over simultaneously with the former, but in an opposite direction; and in such a manner, that both should arrive in the centre at the same moment. The next series of tests consisted in running over the bridge, at first, two engines, one after the other on the same line; then four engines, each pair fastened together, and, running in contrary directions, meeting in the middle. This experiment was repeated, with the addition of joining, to each couple of locomotives, four waggons laden as before. Next, two trains, occupying the whole length of the bridge, were stationed on one of the lines, while a train of two engines and four carriages ran over the other. This was repeated at different rates of speed. After this, while two engines stood on one line, a train, composed as previously, ran on at a great speed, and, at the moment of reaching the middle, suddenly stopped. To terminate the experiments, it remained to produce, as nearly as possible, the effect which would arise from a train running off the line. For this purpose the rails were torn up at a part of the line, and disposed so as to produce the desired effect. A wagon, weighing, with its load, 10,000 kilogrammes, then ran on at a great speed; and at the entrance to the bridge, the engine which propelled it being withdrawn, the carriage continued its course until it came to the spot where the obstruction had been raised, and then bounded with its whole weight on almost the centre of the bridge. It ran over the bridge, but the shock was so great, that the axles were broken. Not one of these experiments, even the last, at all disturbed the mechanism of the structure. Notwithstanding the satisfactory result of these proofs, the Government has decided that nothing shall be wanting to ascertain, beyond doubt, the strength of the structure; and fresh experiments will accordingly be made—one of which is to place a considerable weight on the bridge, which is to remain there a fortnight at least.

HEMP AND FLAX MANUFACTURING COMPANY.—We noticed, in a former Number, that a company formed some years since at Rugley, in Staffordshire, for the manufacture of hemp, flax, and other fibrous materials, under a patent granted to Mr. Donlan, were, from the great influx of orders, about increasing their capital, and largely extending their works. It is now proposed to make the capital 225,000*l*., and we understand that such is the knowledge of, and confidence in, the great superiority of this method, over all others, in the strength and beauty of the fabrics produced, that applications for shares are exceedingly numerous, and the company is rapidly proceeding to its completion.

PROBABLE REDUCTION OF THE IRON DUTIES.

(FROM OUR PARIS CORRESPONDENT.)

I am happy to be able to inform you, that it is very confidently (and, I believe, correctly) asserted, that at this present time the Minister of Commerce is busily engaged in collecting information relative to the operation of the existing duties on iron, with the view of preparing a measure for such a reduction thereof, as shall afford railway companies in particular, and the community in general, the means of obtaining from foreign countries different descriptions of iron at a reasonable rate. The Minister has the power to reduce the duties by royal ordinance; but in a matter of so much gravity, and which will excite so much opposition, he very wisely determines on seeking the support of the Legislature. Some very knowing people boldly say, that they know the extent of the modifications which the Minister proposes to make; but the truth is, that at present nothing whatever can be known on the matter; and, in all probability, the Minister himself has not yet made a decision. It is, I think, to be expected, that at first the reductions proposed will be moderate; but, if the Minister be really desirous to afford relief to the nation, he must be prepared to consent that other reductions shall take place from time to time, until at last the present monstrous monopoly shall entirely cease. It would only be justice, indeed, to annihilate that monopoly at one fell blow; but, if it be got rid of gradually, people will not complain, provided the operation be not spread over too long a time.

The intelligence that I can communicate to you cannot fail to afford great pleasure to such of your numerous readers, as are interested in the iron trade. The projected reductions in iron, be they what they may, will certainly be beneficial to our ironmasters—for they will increase the demand for their iron, and certainly pave the way for throwing open to them, on favourable terms, the vast market afforded by 35,000,000 consumers. The *Moniteur Industriel*, as the official organ of the monopolists, will, probably, hold up this declaration to the indignation of France, as a proof that perfidious Albion only desires a reduction in the iron duties for her own selfish interests. It would, certainly, be absurd for an English journalist to pretend that he advocates such a reduction from pure disinterested love of the French; but he can declare, with a safe conscience, that that reduction will be ten thousand times more beneficial to France than to England—and that, in advocating it for the sake of his own country, he thereby advocates the interests, rightly understood, of 35,000,000 Frenchmen.

One of the principal organs of the free traders, *La Patrie*, says that, though it will accept any reduction whatever that the Minister may propose, it will not be satisfied until the duty on iron shall descend to 10 per cent.—remaining only at that figure, if the interests of the public Treasury shall require; and, on cast-iron, the *Patrie* requires, that the duty shall eventually be reduced to 5 fr. the ton. The ironmasters will, no doubt, become frantic at the very mention of such figures; but the public has an undoubted right to be contented with nothing less. The ironmasters, in truth, have fleeced the nation of more than enough—their exactions having, for years past, been not less than 1,020,000*l.* sterling per annum. In 1791 they contented themselves with a duty of 20 fr. per ton (of a thousand kilogrammes) on iron in bars; at present they take, on the same article, from 200 fr. to 400 fr., according to the dimensions. Formerly, if I mistake not, *fontes* were admitted duty free; now they are either totally prohibited, or pay 77 fr. on those from England, and 44 fr. on those from Belgium. In 1826 and 1827 the ironmasters sent rails up to 800 fr. (32*l.*) a ton, and only consented to let the St. Etienne Railway have them at 20*l.* per ton out of respect to a particular Minister. At present, prices are excessive; and not only so, but railways cannot possibly get supplied with rails, and other articles, in anything like a reasonable time. The *Patrie* calculates that, if no reduction be made in the present duties on iron, the railways now in course of execution, will have to pay from 100,000,000 to 120,000,000 fr. more for their rails alone than they would if allowed to import from England; and on other articles absolutely necessary—such as chairs, wheels, bolts, &c.—the outlay, above what English articles would cost, would also be immense. The same journal declares positively that, not content with the enormous protection against foreign competition, the ironmasters make the consumers pay 50 per cent. more than the just and natural price of the French *fontes*, and more than 100 per cent. on the just and natural price of French *fer*.

The letters from St. Dizier, of the 26th, bring only prices of spouts, clock weights, and domestic and other articles, which are not worth quoting. In wood there were no transactions.

In justice to the ironmasters, it must be admitted that the owners of wood, and of coal mines, take a good slice from their odious monopoly. Formerly the owners of forests made the iron establishments pay excessively dear for wood for their furnaces, and they do so still. Of late years, since furnaces have begun to be heated with coal and coke instead of wood, the coalowners have been very exacting, and are, it is said, inclined to be still more so. But it is absurd to throw, as the ironmasters do, all the blame of the present dearth of iron upon them. Nevertheless, their exactions are sufficiently great to excite the attention of the Government; and it would be the easiest thing in the world to put them down, by affording great facilities for the admission of English coal and coke. If that were done, all, or nearly all, the furnaces that now use wood, would employ coke and coal. The ironmasters, in fact, would have a right to demand a diminution in the price of fuel, in the event of an alteration in the existing import duties on iron.

The Minister of Commerce has recently issued an ordinance, providing that the *cousinets* for railways manufactured in Corsica shall be admitted duty free. Corsica is a French department, and yet till now the ironmasters have been "protected" against its products!

The *Presse* says that the Divan has allowed 350,000 fr. to the company (French) that some time ago took in hand the sulphur mines of Tripoli. They had been conceded to an individual, who got up the company, and, on his death, the Turkish Government seized them, on pretence of political crimes—this caused great injury to the shareholders; and, on this being made known to the Divan, the recompense mentioned was, after some hesitation, allotted to them.

FOREIGN IRON.—Very extensive importations of iron are at present taking place, especially from Stockholm, Gothenburg, and Gefle, the produce of Sweden—one vessel having brought 10,885, another nearly 14,000, and a third the large quantity of 18,349 bars of the article. Numerous other vessels have arrived from the same places with large cargoes, varying from 5000 to 10,000 bars of the same description of merchandise on board. These large arrivals at the present time may readily be accounted for, in consequence of the great demand for iron to effect the continuation or completion of the vast amount of operations in progress or in embryo throughout the country requiring such description of article for present or stock purposes, with the probability of the demand being still further increased at no very distant period. The iron mines of Sweden are known to be inexhaustible, and to afford ample means for responding to the calls which may be made upon them, and which, indeed, would appear evident from the fact above-mentioned.

FRENCH CONTRACT FOR COAL AND CAST-IRON.—The *Moniteur* contains a notice of the Minister of Marine, announcing that a supply of 4,000,000 kilogrammes of coal will be adjudicated at Rochefort, on the 19th December, 1846; and that a lot of 500,000 kil. of coal for coke, another 4000 hectolitres of slack for forges, a third of 300,000 kil. of Welsh coal, a fourth of 4,000,000 kil. of sea coal, and 400,000 kil. of new English cast-iron, will be likewise adjudicated at Nantes on the 26th inst.

EXPORTATION OF BLACK LEAD.—The *Mediator*, New York packet-ship, which left the London Docks on Wednesday last, carried out 100 tons of this article. The exportation of black lead, we hear, has been very great by the American ships lately, and the *Quebec*, which sails on Monday, will take 40 tons.

Original Correspondence.

ON THE WELSH MODES OF GETTING COAL, &c.

SIR,—Nothing but a desire to benefit the mining interest could have induced me to enter upon this series of communications. Innovation in any form (and most probably my observations and proposed changes may be considered by some as innovations) generally raise the ire, and draw forth the opposition, of those parties who may think proper to consider themselves in anywise injured or lessened by such alterations and changes. It may reasonably be expected, that the subject matter of these communications will be opposed by those of your readers who are wedded to their own opinions and notions—by those who are opposed to change—and by those who may refuse to consider the arguments, and weigh the merits, of the proposed changes. To such of your correspondents as may demur to my views, if their objections are made in a proper spirit, and with the evident intention of acquiring a further elucidation of the system, I shall be happy to reply. I do not presume to press my opinions upon the consideration of any, much less of those who may refuse to hear of anything which will clash, or even seem to clash, with their preconceived opinions and practices. Reason would be lost upon such characters, and it would merely tend to fritter away valuable time, and take up your valuable space, to attend to their observations; but *bona fide* questions shall be attended to. Colliery workings are so complicated, and varied in their situation and local circumstances, that it will be impossible for me to do more than to give the outline of a general system of working, which may require to be modified, and probably somewhat altered in practice, to meet the circumstances in which it may be applied; but even under these circumstances, if I fail to substantiate the position I took in the *Mining Journal* of the 14th inst.—if I fail to show the superiority of the principle of any proposed change—in fine, if I do not fully, fairly, and clearly prove, the truth of those three propositions in my first communication, let these letters be presumed to be those of a theorist, and the effusions of one who has written merely for the sake of writing.

The Welsh coal is of the description known to geologists as carbonaceous, contradistinguished to the coal in the north of England, and which is known as bituminous—the latter being generally of a shining black, and laminated by smooth faces, running in the coal parallel with each other, and bearing within a few degrees of the magnetic north, and which is generally known as the end of the coal. The Welsh coal is of a dead black colour, and is deficient from its nature of this laminated appearance, but possesses others peculiar to itself, and locally known as slips, and which (if I err not) will be found to possess all the good qualities of the end or face in the northern coal, without its disadvantages. It is remarkable that the bearing of the end of the coal in one description, and of the bearing of the slips in the other, are essentially the same, both running within a few degrees of north. This is a peculiarity that has not, at least so far as I am cognisant of it, been noticed by any writer on geology; and it was from this circumstance of general identity, that first turned my attention to contrast the different methods of working, and more particularly to a consideration of the Welsh method.

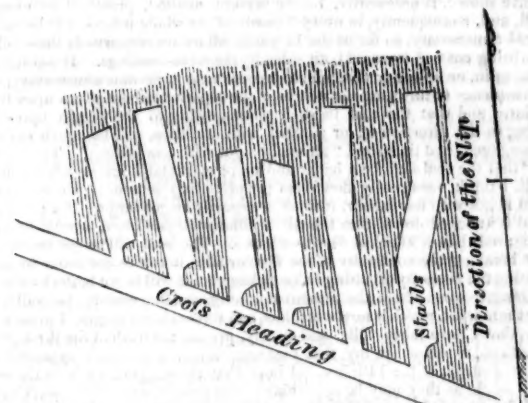
It is the property of these slips to divide a vein of coal into a series of rectangular pieces, and makes what without them would be one strong mass of black rock into a series of large cobs or pieces. There is in this phenomena an evident design to facilitate the working of the veins; and, by availing ourselves of it, we only carry out a careful attention to the phenomena of Nature, and render tributary to our convenience and comfort an allwise and bountiful arrangement. It was probably in consequence of the regular continuity of these slips, that the attention of the geologist was directed to an inquiry into the origin of coal; and it is now universally admitted by all parties, that we owe our immense deposits of coal to a deposition of vegetable matter. Many circumstances lead to this conclusion—amongst them, perhaps, the most obvious is the gradual transition, observable between perfect coal, and decided vegetable matter. Not less declaratory of its origin—although not, perhaps, so clearly expressed—is (1) the numerous remains of vegetable impressions found imbedded in the coal strata; 2, the woodlike and fibrous appearance, which has recently been found by the aid of the microscope, in every description of coal; and also, by the fibrous texture of the coal, as seen by the naked eye. A vein of coal being of vegetable origin, and as the vegetable tissue, is yet even in the most perfect specimens observable, it is perfectly reasonable, that if this tissue has to be cut in the extraction of the coal, that this fact ought to have its force in the practical operation of cutting that tissue. A block of coal possesses all the characteristics of a block of wood; and if the reader will suppose such block of wood, to be placed under the superincumbent strata of the earth, and often at a great depth—and take into account the great pressure which it would have to bear—he will at once see the reasonableness of my views, and the cogency of my observations. To attempt to cut a narrow road through that block, under the above circumstances, and in the direction of the grain, would be attended with much labour, and the pieces severed would be small and worthless; but if that passage is cut at right angles to the grain, it must be evident that it will be much sooner accomplished, and larger pieces will be extracted. At the same time, paradoxical as it may seem, any description of wood may be cut much easier with than against the grain, if no pressure is applied, to prevent the action of the knife as a wedge; for it is only by its action as a wedge, that the operation of cutting on the grain is performed. And also, if any description of wood has to be cut in two, the easiest and most direct way of cutting it is to cut it at right angles to the grain—as, in this case, the cutting properties of the knife are brought into operation. An axe may be struck into a block of wood, upon the ends of the grain, in the direction of the fibre, numberless times, without producing any effect; but if used in the direction at right angles, with or rather across the grain, every blow, if made judiciously, cuts the fibre, and clears its own passage. At the risk of the charge of tautology, I will give another illustration, and then proceed to show their applicability to the operation of getting the coal. Suppose that a piece of masonry has to be demolished, which has got fairly consolidated in its bed; and that, from some peculiarity in its construction, all the bricks of which it has been formed or built have been placed, with their ends in one and the same direction—if the attempt is made upon that part of the masonry presenting the end of the bricks, it will be evident that a great amount of unnecessary exertion and labour will be required, that the bricks will be broken off short—and it will only be by the dint of mere physical strength, that the object can be accomplished; but if this operation is commenced upon that side of the masonry, presenting the side or face of the brick, that immediately a few bricks are removed, the whole may be considered won, and a considerably greater quantity of bricks will be got out sound, and the work much sooner and easier accomplished. The reasoning in each of these cases will apply to the operation of extracting the coal; the fibre in the wood, and the end of the bricks in the masonry, being similar in all respects to the ends or slip in the coal formation; and the advantages or disadvantages in either case will be seen to be fully borne out in the operation of getting the coal.

Having made these preliminary observations, I will now proceed to describe the present method of working the coal. I will point out the disadvantages attending that method, and then proceed to apply the above reasoning and observations to the system now proposed, in order to substantiate the position I have taken.

The coal workings in Wales are known by the general names of headings and stalls. The heading serves as a principal gallery, and is driven from two to seven yards wide: the former being called a straight heading, and the latter a stall heading. They are driven upon the slip of the coal, and at certain distances, varying according to the discretion of the underground agent. Cross headings, of seven yards wide, are driven at right angles with the others, and consequently at right angles with the slips, and this is done in order to enable the stalls to be turned, and the coal got upon the slips. The stalls are generally about seven yards wide; and it is from them that the principal supply of coal is obtained. In driving a stall—say, seven yards in width—the collier has, in the first place, to nick up or cut in—that is to say, he has to cut a narrow slit, on one side of the stall, generally on the road side, two feet six inches, or three feet, forward in the coal, and varying, according to the skill of the workman, from two feet to three feet in breadth at the commencement. This slit, when completed, assumes a wedge-like shape. When this is done, the operation of holling under, or rining, is commenced, and is continued across the face of the stall. When both operations are completed, the coal may be considered got, being ready for taking down with the wedge or blowing down

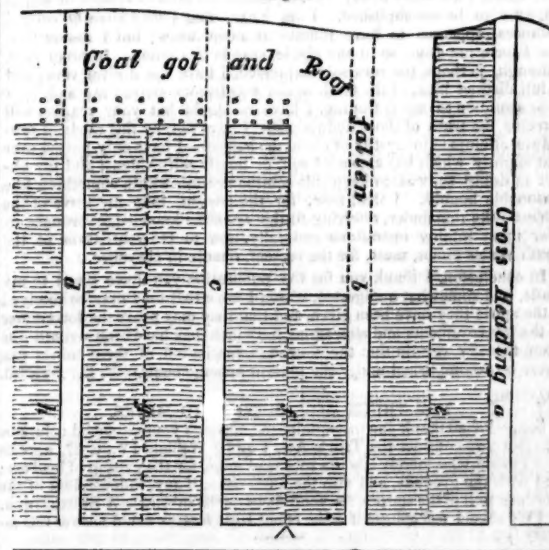
with powder. It will be evident that all the coal got is nicking in (mining across the face), and also (unless the side of the stall is parallel with one of the slips, which is generally a matter of uncertainty) the coal which is chopped off the opposite side of the stall to the nicking in, must be necessarily small, and is consequently unsaleable, and is stowed away in the gob. I demur, for the above reasons, to the coal being got by stalls, and also to their being driven upon the slips; and contend that, in consequence of such driving, there is an unnecessary expenditure of labour—that there is a deterioration in the quality of coal got—and that, in consequence of such deterioration, it is not of the same marketable value when got. In addition to the above objections, there is, by the present methods of working, a considerable portion of the coal left in the ground in the shape of pillars—the whole superincumbent strata being often upheld by them, and the content of these pillars probably amounting, in some instances, to 20 per cent. of the whole: this is a negative loss. If the coal proprietor, in winning and laying dry a piece of coal, expends 5000*l.*, every yard of coal so laid dry is indebted to such proprietor for a proportionate share of such 5000*l.*; and if 20 per cent., or one-fifth of the coal, is left in the ground, and consequently lost, the four-fifths got is saddled with the whole cost, or one-fifth more than it ought to be; and there is, therefore, a loss, or a deprivation of profit, upon every ton of coal left in the ground; and even where the pillars are robbed out, and the coals are considered clean got, from the want of system in driving the stalls, the pillars are often left of various thicknesses—it being very often the case that the stalls are run into each other; and the pillar, consequently, becoming twice the thickness it ought to be, from two being thrown into one, its clean extraction becomes nearly an impossibility. It is further not at all unusual for these stalls to be turned out of the heading driven upon the slips; and as the stalls are also driven upon the slips, they are, for a certain length, driven upon the corner of the slips, forming a semicircle, within 10 or 12 yards, or until they get parallel with the heading from which they were driven, and are consequently much more, and which are objectionable, than when entered upon the slips. The annexed sketch (figure 1) taken

Fig. 1.



Scale—Two in Inch.

Fig. 2.



from actual workings, will serve to illustrate the present general method of working the coal. It will be seen, from this figure, that the stalls are all driven independent of each other, and, consequently, all the coal got out of them is got out of the solid. This figure is an average best specimen of the mode of working.

In a description, similar to the one here given, there is necessarily, in order not to appear too diffuse, and also from the difficulty of conveying the idea of underground workings to those of your readers who may feel interested in these communications, and who may not be practically acquainted with the economy of the underground arrangements of a mine, a laxity of expression, or an indistinctness in conveying the information; to any inquiry, as stated before, bearing upon this, I shall be happy to reply. In the preceding description of workings, I have described what may be considered an average, well-regulated colliery, and where some attention is paid to the *rationale* of the underground workings. How much more culpable, then, must those workings be where the coal has evidently been considered one homogeneous mass; and headings, stalls, and other excavations, have been made in it in any direction where the Goddess of Chance may have directed, and where, consequently, no order nor regularity has been observed?

I presume, Sir, taking it for granted that there are slips and partings in the coal—that the workings are conducted, as shown in figure 1, which is a copy of actual workings—and that the workmen in each stall has to mine and nick up in his coal before it can be got—and which are all undeniable, undisputable facts, that, then, I have negatively substantiated the position I took in opening this communication—viz.: that I have shown that a greater quantity of coal may be got—that it may be got with less labour—and that it will be better when got; and I think I may add, that it will be got without any increase in the cost. Having attempted to explain the *rationale* of this system now adopted, and having also shown a few of the principal objections to that system, I will now propound a mode of working the coal, by which those objections shall be obviated; and, although I do not claim for this new mode the character of impeccability, yet I am of opinion, that a calm consideration, and an unbiased judgment upon its merits, will award the verdict in its favour, and will show its capability to perform the great and important changes referred to. I propose that the principal heading, marked A, in figure 2, shall be driven upon the slips as at present; and at right angles to these slips, cross headings shall be driven, represented upon the figure by the letters, a, b, c, d. These cross-headings may be driven either straight or stall, according to the judgment of the manager; in the figure, they are supposed to be three yards wide. The coal workings, in figure 2, will represent a square acre, laid down to a scale of one statute chain in an inch, and the dimensions may, accordingly, be taken from it. The letters e, f, g, h, will represent the pillars left between the cross-headings, and which are shown in the figure in different stages of extraction; these pillars are 14 yards in thickness from cross-heading to cross-heading: the dotted line, down the middle of each pillar, denotes the quantity of coal to be robbed or got to each heading—being 7 yards from each pillar, and 14 yards to each heading. Robbing is a very expressive word, and is used to express the clearing out of pillars, or the clean extraction of the coal. It has not been

found in the vocabulary of the Welsh miner; but I trust the time is not far distant when it shall become a household word in South Wales. If the heading, *A*, is driven upon the slips as premised, the straight headings, *a, b, c, d*, will be driven on the rise of the mine; and the pillars will, consequently, be worked from the rise to the dip: these pillars are shown in the following stages of progress—viz.: the pillar to the heading, *A*, is cleared out to within 30 yards of the principal heading, *A*; that pillar being left, to secure the main heading from the pressure of the roof; the pillars, *f, g, h*, and *i*, are shown as cut over, and in the act of being brought back. The small round circles in the figure, and adjoining the face of the pillars, *f, g, h*, and *i*, are the props or puncheons used by the workmen to sustain the pressure of the roof, and also to give indication of danger from the breaking down of the strata. As the coal is cleared away, the hindmost, or last row of props, must be struck out, and replaced in the first rank—the roof being allowed to fall behind as the work proceeds: by this arrangement in using the wood, a less quantity of it will be used; and the weight of the roof being thrown upon the rib or pillar of coal, parallel to the slips, indicated by the faint lines drawn across the pillars, it is clear that such weight will greatly expedite the getting of the coal.

It will be a *sine qua non* in working by this method that both the main and cross-headings be perfectly straight—that there be no unnecessary curves or bends in the roads; and it will, consequently, be in the power, as it ought always to be the duty, of the underground agent to have his working plan several months in advance of his underground work. There will, then, be nothing left to the immature consideration of the moment, but all his plans will be matured by thought; and he will find that method is the handmaid of science.

An inspection of figure 2 will show, that, in consequence of getting the coal upon the system now proposed, that all, or nearly all of it, will be extracted—in fact, the full development of the system is dependent upon such clean extraction; and, unless that is carried out, the utility of the system in some respects becomes questionable, and I have, therefore, proved satisfactorily "that a greater quantity of coal shall be got from a given area."

By the proposed method, the operation of cutting in or nicking up—which, I have shown, is necessarily, by the present method, practised in every stall, and, consequently, in every 7 yards of the whole mine—will be rendered unnecessary, so far as the 14 yards pillars are concerned; these pillars being cut end loose on both sides, by the cross-headings. In addition, mining in, or holing under, will, to a great extent, become unnecessary, in consequence of throwing the weight of the superincumbent strata upon the pillars; and that the coal in such pillars, owing to the weight upon it, being in the direction of, or parallel with, the slips, will be much easier disengaged, and thus shall "the coal be got with less labour." The third—"that the coal shall be a better and more marketable article when got," will, I think, necessarily flow from the preceding sentences; since, if the coal is got with less labour, it must necessarily be got larger; if a piece of coal is knocked down from the rib or pillar with one blow, it must be less fractured than if knocked down with two. The coal will be got better by not breaking the continuity of the fibre or slip; it will be got better by obviating the necessity of cutting in, or nicking up; it will be got better by diminishing, to some extent, the amount of mining; and that coal will be available for the market, which is now worthless, and thrown into the gob. I presume, Sir, that I have fairly, fully, and clearly, proved the truth of the three propositions, contained in my first communication, and which appeared in your Journal of the 14th inst. I hope that the suggestions here thrown out, so far as they may be applicable to the present state of the workings, will be attended to; and that, in cases where the method can be wholly substituted—as, for instance, in a new pit, or in a detached large piece of coal—that it may be done in order to pave the way for an efficient ventilation, which I am sorry to say, cannot, under the present system of working, ever be accomplished. I am aware that I may have, in several instances, appeared to have jumped at a conclusion; but I assure you, that I have not done so in any single case in this series. In every case, although, perhaps, too concisely expressed, I have had a clear view, and a full distinct idea, of the truth of the conclusions arrived at; and, by a close attention to my reasoning, I have no doubt but your readers will perceive the truth of those deductions. I have not, by this mode of procedure, attempted to mystify or cloud the subject—I have only passed over that slightly which has appeared self, or nearly self-evident; and my object in doing so, was to keep this communication within something like reasonable bounds. I shall now, for the present, take my leave of the subject—the remainder, referring to the scientific knowledge brought to bear upon mining operations generally, and to the ventilation of the South Wales mines, must, for the present, remain in abeyance.

In conclusion, I thank you for the publication you have given to my crude, and somewhat undigested, ideas; I hope that they may be received in the spirit they have been given, and that they may prove the forerunner of the improvements and alterations, for which they have been written—as I am morally certain that the thorough ventilation of these mines can never be accomplished under the present arrangements.—F. B.: Nov. 30.

THE TRUCK ACT AS TO LEAD MINES.

Sir,—I shall thank you to acquaint me, through your esteemed columns, whether you consider the Truck Act, 1 and 2 William IV., c. 37, applies to a person who merely labours in a lead mine, for the getting of lead ore; and with the grounds, and also the authorities, if any, independent of the words or text of the statute, for your views on the subject.—A SUBSCRIBER.

[We should feel obliged if some of our legal readers would answer this inquiry.]

GASES OF THE BLAST FURNACE.

Sir,—If Mr. Mushet reaffirms his proportions are correct, I cannot impugn or verify them. I called attention incidentally to these figures; the main point which struck my notice was the asserted proof, that oxygen, "free and uncombined," to the amount of 500 lbs. or 600 lbs., passed off in 20 minutes at the top of the blast-furnace. This result of a calculation being advanced to overthrow the evidence of careful experiment, I required the revision of the data. If there is a point—and Mr. Mushet declares it is preposterously absurd to doubt it—beyond which the oxygen ceases to combine with carbon in the furnace, it follows that an excess of blast beyond this point must cool the contents; for when the oxygen ceases to combine and to evolve heat, the passing current of a lower temperature must abstract the heat already existing. This does not tally with our experience. When it shall be proved by a collation of facts, careful and comprehensive, that more oxygen enters the blast furnace than can combine with carbon in any of its known equivalents, we must then try to discover what becomes of it. But if we are to reason upon probabilities, and say it is probable that one furnace consumes more air per ton than another, because it suits a theory, we shall never get on. If it is fair to assume that Darkhill furnace consumes 30 tons of air because the materials are infusible, it is also fair to assume that a Scotch furnace consumes 10 tons of air because the materials are fusible; and, if the air per ton thus diminishes as the carbon per ton diminishes, the free oxygen is soon disposed of, especially aided by the inflammable gases evolved from two tons of coal. Mr. R. Mushet ought to abide by the consequences of his own rule which he himself gave, without any Welsh qualification; and, moreover, I must again demur to calculations not made on an average of long periods. What was the time of average? Isolated observations upon 20 minutes' produce are impossible. Nothing is more necessary in science than fact; nothing so dangerous as assumption. Take, for instance, the theory of deoxidation of cement; let it be granted that in the upper parts of the furnace the earths are deoxidised.—I am quite sure no person, who has seen these metallic bases deoxidised, will admit of such a focus in the blast furnace, much less that the whole mass of materials can undergo that extraordinary decomposition. But let it be granted, *et postulatam*, which will again destroy the theory of free oxygen, for they would not deoxidise in its presence—then these metals, which burn at the lowest temperature, come down intensely heated into a stream of oxygen!!! Why, so far from its being possible that the slag of the blast-furnace is an alloy of earthy metals partially revived, we may be certain that, if these bases are susceptible of a higher stage of oxidation, it is in that highest and intensest amount that the earths flow from the furnace. I would much rather suppose, that any oxygen not to be accounted for, is thus combined in the cinder, than admit the possibility of its escape at the top. In the decomposition of water and escape of hydrogen, there plainly is a fallacy. Combustibles decompose air more rapidly than water; the metallic bases would degenerate in the atmosphere the moment they escaped the furnace—they would not wait patiently until pounded and watered; and water thrown upon them in ignition, would not produce steam, but volumes of blue flame. Mr. R. Mushet overlooks a most important point; the capacity belonging to iron alone of all the metals of forming an alloy with carbon, protects it in passing the ordeal of the blast; and we cannot figure the condition of the poor earthy bases—granting them to have been deoxidised—more com-

pletely than by adverting to the state of the blast-furnace and its fiery iron, when the carbon is deficient. Hypothesis must not run wild. See, after the precise description of the vicissitudes of the *sesqui-oxide*, how indifferently a third substance is introduced as necessary to that effect which had been explained without it. If Mr. R. Mushet considers a stream of salt water flowing from the sea up the banks of a rapid river—an apt illustration of the descending currents of the blast furnace—I will admit it is the more credible of the two. In his admission, that the passage of the free oxygen is not proved, the object of my correspondence is gained.

Nov. 30.

Dr. RITTERBANDT.

Sir,—I could have no other possible motive, for my remarks on Dr. Ritterbandt's patent, than the public good. I have not the honour to know Dr. Ritterbandt personally, but cannot doubt that he is an excellent and estimable man. My deductions were not founded on assumptions of my own, but on the asseverations of another, which, from their stern and uncompromising boldness, I, as a matter of course, believed to be true. I should be the last individual on earth to filch a feather from the merits of the invention—"Ponderibus librata suis"—rather may Dr. Ritterbandt enjoy, in peace and security, the meed that is due. I know too well what miserable remuneration (and which I personally feel) awaits the devotion of a lifetime to study and the interests of science—

"Quoque ipse miserrima vidi."

"Et quorum magna pars fui."

In the plans of Providence, good frequently springs out of evil; and Dr. Ritterbandt will remember, that silver has to pass the ordeal of the crucible.—J. MURRAY: Portland-place, Hull, Dec. 3.

GUN COTTON.

Sir,—From the fact stated in my previous notice of this formidable substance—namely, the elaboration of *acid* matter—it is obvious that gun cotton can never be safely applied to ordnance, or to the fowling-piece. I perceive that a violent explosion has taken place in the laboratory of a scientific chemist, at Königsberg, from a quantity of gun cotton, at a temperature minus 140° Fah., by which the windows of the laboratory, &c., were destroyed. I, indeed, anticipate serious accidents from incautiously meddling with this material—with proper precaution and care, gun cotton seems, however, well adapted for the quarry and the mine.—J. MURRAY: Portland-place, Hull, Dec. 3.

THE STEAM-BOILER EXPLOSION AT ASHTON-UNDER-LYNE.

Sir,—I am glad to see that, in his evidence on the late catastrophe of the steam-boiler explosion, at Ashton-under-Lyne, Mr. Fairbairn insists on the necessity that every steam-boiler should be supplied with two safety-valves, acting on different principles. I am glad that engineers are at length awake to the importance of what I have insisted on as essential, for these 20 years bygone. The singular phenomenon, which I referred to in a former communication, with the thermometer and gun cotton, has fully convinced me, that I was right in ascribing explosions in steam-boilers, in the majority of cases, to the sudden impulsion of flame on the under surface of the bottom.—J. MURRAY: Portland-place, Hull, Dec. 3.

HOLBORN-HILL VIADUCT COMPANY.

Sir,—A project has been started, for removing the disgraceful and dangerous nuisance of the ascent and descent for men and cattle at Snow and Holborn-hills. As a curiosity, I beg to hand a copy of the financial details of the scheme, where, upon the facts already established before a Committee of the Commons House of Parliament in 1833, and merely adding thereto a third, for an increase, during a period of 13 years of peace and unexampled prosperity to the empire, and, by the extension and augmentation of the various railways, adding to the metropolis, a more than two-fold increase of strangers has been brought into it. By these results, I presume a remunerative profit to the investors would amply be obtained, the most pleasing and the most startling, as the readers of your excellent and widely-circulated Journal may judge for themselves.—A LONDONER.

Old Slaughter's Coffee-house, Dec. 2.

Evidence of the Traffic passing this Thoroughfare in the year 1833, and revised in the year 1839, before Sir Matthew Wood and a Special Committee of the House of Commons.

30,000,000 pedestrians—then, suppose one-third, or 6,666,666 to pass over the viaduct	at 1d.	£13,888 17 0
87,640 equestrians ditto	one-half, or 43,820 ditto—at 1d.	91 5 10
372,470 carts and waggons	at 1½d.	2,327 18 9
236,628 cabs, &c.	at 1d.	985 19 0
218,100 omnibuses	at 1d.	908 15 0
460,110 chaises and taxed carts	at 1d.	1,917 2 6
354,942 chariots	at 1d.	1,478 18 6
		£21,598 16 7
To rents of houses and shops		6,700 0 0
		£27,298 16 7

By this data, it may fairly be assumed, since 1833, the traffic has increased one-third

Annual income	£36,398 8 9
Minus annual expenses of repairs, toll collectors, and other agencies	1,300 0 0
Net annual income	£35,098 8 9
Estimated cost of viaduct, including purchase of property and compensations	£170,000

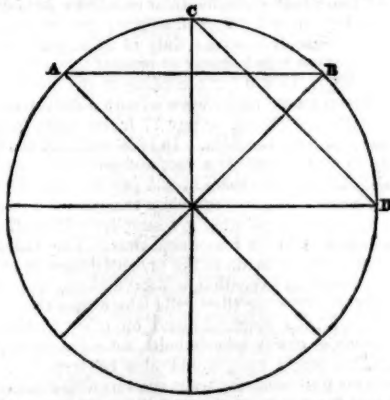
IMPROVEMENTS IN SHIPBUILDING.

Sir,—I was glad to see by the letter of "S.S.," inserted in the *Mining Journal* of Saturday last, that my letters on the proper formation of sailing vessels were attracting the attention of parties who really understand the subject. I do not know whether "S.S." has taken the trouble to read all that I have written on this question; for I am not so sanguine as to expect every one to wade through the whole of my correspondence with you; but "S.S." in his letter, although he appears to differ from me, does, in fact, support my views, as previously expressed. He says—"Sharp bows are commonly an improvement, if they are an addition to a vessel, but often an injury, in case they are a subtraction from the requisite displacement." Now, this amounts precisely to what I have been contending to establish, and what "R. S. N." has been ignorantly denying. In my letter of November 4th, which appeared in the *Mining Journal* of the 7th, in referring to the account of the *Columbus*, of London, given by "R. S. N." I say—"she may have great length, or other qualities, to obviate the defect of the narrow bows": this closely resembles the opinion I have previously quoted from the letter of "S.S.," and when it is remembered that I brought forward the diagrams and arguments to prove the utter impossibility of producing any good results, by placing the broadest part of a vessel at only one-third from aft, as is proposed to be done by Mr. John Scott Russell in the so-called wave system, I trust "S.S." will at once agree with me that, by such an arrangement, the requisite buoyancy of the fore end would be so completely annihilated, that, in beating against a head sea, the vessel would be constantly bows under, keeping her fore-castle and main-deck in an everlasting deluge. If he refers to my letter on the necessity of an affinity between the position of the foremast and the broadest part of a vessel, he will find that the instance quoted by him of the "Coves pilot-boat," is quite a corroboration of my views; the length added to the bow being 6 feet, and the distance to which the mast was moved forward 18 inches—still preserving a proper relation with the broadest part: in this instance, instead of the buoyancy of the fore end being diminished by the addition of the sharp bows, the buoyancy was increased not only forward, but throughout, the whole vessel; and, by making her displace more water on the surface than she did before the addition to her length, with little or no increase to her weight, she, therefore, drew much less water, and was better enabled to rise on to the swell—at the same time, the resistance, as compared to the quantity of water displaced, was materially decreased, and thus she sailed, and answered better than she did before: at the same time, with the length, the resistance to lateral drift increased also, and, consequently, she held better to windward; whilst not needing so much lee helm, when close hauled against a head sea, she made one-third more head way. I have little doubt that "S.S.," who evidently understands the subject, will go with me in the above conclusions. On reconsidering the matter, this gentleman will, I think, admit the error he has fallen into, when he states that the power necessary to overcome the increasing resistance is "as the cube of the velocities." Take a given space of time—say, one hour—and let the distance traversed be five times the former quantity, the result will be five times the pressure on the square foot, and five times the quantity of water impinging at that pressure—thus: $5 \times 5 = 25$; or, put it the other way—let one-fifth of the time be taken to traverse the original distance, as proposed by "S.S.," the result is equally the same—the pressure per square foot is increased five times, and the original quantity of water impinges; but, in one-fifth of the time, having only a similar effect to five times the quantity of water impinging in the original space of time—the increase of requisite power for gaining that speed being

in either case $5 \times 5 = 25$, or as the square of the velocity. The question is not what power will be expended in moving it at five times the speed for an hour; but what increase of power will be necessary to move it at a speed, which, if continued for an hour, would carry it over five times the distance? The increase of power necessary to gain that speed is only as the square of the velocity; but, if continued for a length of time, the expenditure of power per hour will be as the cube of the velocities, because the increase of five times five of the original power is continued five times as long—still the increased power applied to gain this speed is only $5 \times 5 = 25$, equal to the square of the velocity. Thus, a boat that one horse could draw at one mile an hour, would take 25 horses to draw it at five miles an hour; but the same 25 horses could, by continuing their exertions for an hour, draw it the whole five miles—thus, the necessary power to obtain the speed is as the square of the velocities. I am firmly of opinion that a theory to be perfect, must be simple; and that, by rendering it complicated, the subject must become embarrassed with erroneous and extraneous matter. Under this impression, I differ from "S.S." in supposing "the theory of shipbuilding is not of that simple character as to be founded on a few diagrams;" but, of course, those diagrams can only apply to the immediate question under discussion, and many apparent incongruities must arise in such an inquiry as this, which will require reconciling in the retrospective summary.—NAUTICUS: London, Dec. 1.

DEFECTIVE RAILWAY CONSTRUCTION.

Sir,—Safety in railway travelling is too important a subject to be dismissed from the public attention with a sneer or false analogy; and I cannot but believe that a clear and succinct review of some of the causes of accidents, and the means of obviating them, must receive the consideration it deserves. In this communication, I shall confine myself to the addition of proofs of the superiority of the round rail for safe travelling. If I can say nothing new, I may at least succeed, by the iteration of demonstrative argument, in rousing the attention, and convincing the judgment, of some of the great and powerful in railway affairs. It is undeniable that a frequent cause of destructive accidents on railways is the dislocation of the joint or mechanical connection between the lines of rails, and the wheels moving over them; this necessarily happens whenever the train runs off the line—a circumstance, it must be admitted, of no very rare occurrence. It is equally undeniable that this dislocation, or breach of mechanical connection, arises from causes which destroy the juxtaposition of the corresponding surfaces of these distinct portions of the railway apparatus. It follows, that some arrangement which will preserve the mechanical relations between the lines of rails, and the wheels moving over them, under the various changes in the juxtaposition of their corresponding surfaces, however occasioned, can alone prevent the accidents to which this dislocation or breach of mechanical connection necessarily gives rise. What is wanted, then, is clearly a connection or joint between the rails and the wheels, which will not admit of dislocation—a sort of universal joint, which fits in all directions, and will adopt itself to all circumstances. That a round rail, with proper correlative arrangements, is capable, and alone capable, of effecting this paramount object, can be proved by the following propositions:—1. Round is a (the only) figure, having every point in the circumference equidistant from the centre.—2. It follows that equal sections of a round (or circle) must always possess geometrical and mechanical properties strictly identical.—3. In the annexed figure, it is evident that the



arc, A B, is equal to the arc, C D, in all its geometrical and mechanical relations, having a like chord and a like radius; and the same may be predicated of every section of 90° of the same circle, but of no other conceivable geometrical figure. Move a wheel or any other connected body from A B to C D, or vice versa, and the mechanical relations between the two remain strictly the same, their connection being, in no degree, disturbed.—4. In consequence of these properties, round is the only figure which can offer, to a connected portion of machinery, a like surface, and an equal degree of support and resistance, with whatever portion of the circumference it may be placed in juxtaposition.—5. This property enables a round to preserve its relations with connected bodies, under a variety of disturbing causes, which must necessarily destroy the mechanical connections of bodies having other forms; because, when surfaces of new and discordant figures are presented to each other, the degree of support and resistance no longer corresponds; the juxtaposition of accordant parts is put an end to, and their geometrical and mechanical relations are entirely broken up. Without, at present, referring further to the correlative arrangements required to make this exclusive property of a round available in the construction of railways, I shall notice two other important properties, which are equally demonstrable by experiment and sound reasoning. The question of friction, in connection with round rails, has been much mooted and much misunderstood, notwithstanding the experiments of Mr. Greenhow, which ought to have sufficed to set it entirely at rest. In confirmation of the result of those experiments, and to prove the necessity of that result, I shall cite prop. 9, book 3, of *Euclid*, which declares that—"If the circumferences of two circles meet one another in a point which is in the straight line joining the centres, or in that straight line produced, they shall meet in no other point." In this simple truth, we discover the cause of the slight degree of friction attendant on the passage of the hollow circular wheel tire, over the cylindrical rail. The circle, of which the tire is a segment, must necessarily be of larger radius than that of the rail—otherwise, no motion could take place of the one over the other. The point of contact must be "in a straight line, joining three centres, and they shall meet in no other point." They may touch at A B C D in succession, but must cease to touch at any of these points, so soon as they touch at any other. At whatever point the wheel and the rail touch, while the one passes over the other, the motion must, of necessity, be purely that of the one rolling over the other, and cannot be accompanied by any, the slightest, degree of rubbing or grating. In whatever proportion (and it is very great, compared with ordinary wheels and rails) this diminution of friction takes place, in the same proportion, will be the economy effected in the wear and tear of machinery, and in the efficiency of the tractive power. The last property of round tubular rails which I shall notice, and it is a very valuable one, is their greatly superior strength. Mr. Fairbairn's experiments have proved that—"hollow beams of wrought-iron are about three times stronger than solid beams of the same form;" and the experiments of Mr. Hodgkinson prove that—"cylindrical hollow beams are the strongest of all, in the proportion of about 2 to 1, as compared with square or oblong. But the rails used on railways are neither more nor less than beams of wrought-iron; and, if made hollow and cylindrical, their comparative strength will be nearly in the proportion of 3×2 , or 6 to 1; nor is it less evident that the quantity of iron required in their construction, would be very considerably less than in the present form of rails—probably in the proportion of not less than 20 or 25 per cent.: herein we perceive a new and important element of economy. Such are the properties peculiar to the round hollow tube, by which it is so admirably and pre-eminently fitted for the purposes of railways—properties which, I am persuaded, cannot be long overlooked by practical engineers.—G. M. T.: Nov. 26.

FOURTH-CLASS TRAINS.—The directors of the Eastern Counties and Norfolk Railway, with a view to give the poorer classes greater facilities in travelling by railway, have just started a fourth-class train, by which passengers are conveyed from Yarmouth to Norwich, and through to London, for 7s. 6d., and a return ticket, available from Monday, or any other day to the following Sunday, for 10s., which is little more than one farthing per mile.

THE MANUFACTURE OF COAL GAS AND ITS DISTRIBUTION.

The following interesting lecture was delivered at the Mechanics' Institution, Devonport, by Mr. T. A. HADLEY, engineer—part of which was given in last week's Journal; but, from the interest that it excited, and the curious matters detailed, as well as the erudition displayed on the subject, particularly relative to the early discovery of gas, we are induced to devote some considerable space in our present Journal to a full and complete report. Mr. Hadley's lecture, we may observe, was attentively listened to throughout, and the elucidatory manner in which it was delivered, proved him to be a complete master of the subject. The lecturer exhibited a great number of very beautiful drawings, amongst which were designs and plans of some of the largest gas-works in the United Kingdom—also, drawings of the several apparatus, machinery, &c., as well as large working models—all of which he fully explained.]

Coal gas has now become so generally used, not only in all our large cities and towns, but in many of our villages and smaller places, as to be quite familiar to us; and when we see it introduced to lighting our streets, squares, public places, shops, houses, offices, halls, churches, chapels, palaces, mansions, theatres, club-houses, institutions, ball and assembly rooms, manufactories, workshops, and even the dwellings of the humblest classes, it cannot but be well known to all of us, as it in fact is known, like many other great and important benefits conferred upon us, by an all-wise and beneficent Providence—but without, at least in many of us, awakening that spirit of inquiry and research (and which it is the aim and object of institutions of this nature to encourage and promote), by which matters seemingly involved in mystery, and beyond our comprehension may be made clear, intelligible and comprehensible to all our minds—minds which by exercise, like the use or exercise of the human body, or any part of it, become improved and more fitted and pliant for the services that may be required of them. The smith's arm can wield the forge hammer with a might and dexterity that nothing but use and practice could give it. The weaver's shuttle flies at a rate that nothing but practice could impart; the quickness and promptness, too, attained by almost all trades, render this conspicuous—but, possibly, in none more than in the experienced employes by the postman, in setting up the type for the London public press, showing well the truth of Professor Person's lines—

"How nimble doth the fingers move
When used to their trade."

The mind is equally susceptible of improvement, and equally pliant to practice: use it—use it properly—and there is no limit to its power or grasp.

But the subject I am about to bring before you in this evening's lecture, requires no such exertion of intellect to comprehend; and I will endeavour to place it in so plain and familiar a manner as to make it perfectly clear and intelligible to all.

Some little doubt exists, as it does respecting the origin of most great inventions, as to whom the merit of its discovery is really due; and as coal-gas, or the gas used for the purpose of illumination, has added so largely to our comforts and conveniences, and is justly considered one of the greatest discoveries of the age, I will beg your attention whilst I briefly relate some of the earliest circumstances attending its discovery and application—and by a proper consideration of which, I think you will have no difficulty in determining to whom the great merit is due, and awarding accordingly. Our warriors, our statesmen, our divines, poets, philosophers, and mechanics, have each, and all of them, had statues and tributes awarded to their high deeds and performances—but for this, one of the most useful, convenient, and luxurious, introductions of modern or any former times, has been done. By its discovery—or, rather, that of its use and application—we may be said to have the orb of day continued to us during the night, at least for all useful purposes: our streets are rendered safely traversable at night-fall, and our houses made convenient and agreeable when the shades of night have set in. There are other great advantages, too, bestowed on us by the introduction of gas—which we shall not now more particularly enumerate or dwell on, other than simply alluding to them, as reasons why the originator should not be without that meed of praise he so richly deserves: that man who by his science—by his skill—by his persevering, indefatigable industry and attention—brought it so completely to our notice on this head—but to which I shall recur—it is necessary that I should inform you, for the better elucidation of the subject, that gas, as gas—but more properly speaking, light carburetted hydro-sulphuretted gas, a compound of hydrogen, carbon, sulphur, ammonia, and some other gases—was unquestionably known to the ancients from time immemorial. It is this gas, or vapour of hydrogen, that proceeds, and frequently so fatally, from our coal-mines—it is also produced spontaneously and in considerable quantity, from stagnant waters—it burns with a bluish lamby flame, quite perceptible at night-fall. If the water is stirred a greater flame ensues; and in the neighbourhood of coal-pits—at Wigan, in Lancashire, for example—it has been corded by Dr. Robert Clayton, Bishop of Cork and Ossory, that "in a ditch there, the water would burn like brandy—the flame from which was so fierce, that people boiled eggs over it; and it was even affirmed, by the people in the neighbourhood, that it would have boiled a piece of beef." It is this gas, which it has been represented and believed to have been used by the Chinese, Brahmins, and the Druids, in their temples, consecrated and devoted to the Deity, and which gas they kept constantly burning, as indicative of the continual presence and condescension of the Great Being—thus commanding the awe and reverence of the followers of those creeds. In later days, the spontaneous production of this gas, in damp and marshy places, has given rise to the well-known illusion of the "Will-o'-the-Wisp," or "Jack-a-Lantern;" in Holland and the Low Countries, it goes by the name of "Washt-is-dastel"—evinced the correctness of Dr. Darwin's beautiful lines—

"That heat evolved from some fermenting mass
Expands the kindling atoms into gas."

This gas, generated from decayed vegetable or phosphoretted matter, has accidentally become ignited; and the wind blowing the flame forward, keeps it constantly supplied with fresh gas, fresh ignition, and consequently fresh destruction, and to its followers fruitless toil, and not unfrequently ruin and loss of life, by leading them to the very places from which it proceeds. A remarkable instance of the spontaneous production and ignition of light carburetted hydrogen gas, together with phosphoretted hydrogen (which latter gas ignites on coming into contact with the atmosphere, and thus again accounting for the "Ignis-fatus"), occurs at Pietra Mala, a desolate station in the Apennines, at the most elevated point of the road over those mountains from Bologna to Florence. The gentleman who made me acquainted with this fact has been an eye witness to the phenomenon. He states that, about half or three quarters of a mile from the high road, a flickering flame, rising about a foot from the ground, is seen, and this over a space of three or four square yards. The flame is alternately extinct and apparent, over this space, in fitful flashes; and the guide finds it out with his hat, and explodes and relights it by piece of paper lighted at a part still after the gas, in a state of ignition, a few feet distant. It was stated to him that after rain the flame attained a great height—as much as 18 feet; and on his return from Italy, while repassing this road, by night, he looked for the phenomenon: fortunately, rain had previously fallen, in considerable quantities; and, to his great gratification, he perceived it, no longer a feeble, tremulous, and vagrant flame, but a vast body of fire, rising to a height which rendered it clearly perceptible from the road, although at the distance he has before mentioned.

Returning to the subject of our lecture—"Coal Gas"—Dr. Clayton, the bishop alluded to, being struck with the phenomena of the coal ditch, at Wigan, made some experiments of a very interesting and valuable character, and which are described in the "Philosophical Transactions of the Royal Society of 1739," (rather more than 100 years ago). He there unquestionably shows, that he was not only acquainted with the science or means of producing this gas, which he called "the spirit of coals," (but which, in fact, constitutes the base of all animal and vegetable matter); he says—"I got some coal and distilled it in a retort, in an open fire; and then a 'spirit' arose, which I could no ways control—it forced my lute, and many retorts: once, when it had so forced the lute, coming to try to repair the lute, I found the 'spirit' had burst the lute, and I was consequently caught fire, and burnt with violence as it issued out in a stream, which I blew out and lighted again alternately, blowing out and lighting many times." He then made a quantity, and got it into a receiver, to which a pipe was attached. He then says—"Putting a candle to the end of the pipe, whilst the spirit arose, I observed it caught flame, and continued burning, though you could not discern what fed the flame. I then fixed a bladder (squeezed and void of air) to the pipe, and the spirit filled the bladder," (distending it as it does the balloon of the aeronaut, and the small balloon you have just seen me fill and send up before we parted). I then found the "spirit" had burst the bladder, and continued to rise for several hours, and filled the bladder almost as fast as a man could have blown them with his mouth, and yet the quantity of coals distilled was inconsiderable." He "amused his friends, and sometimes strangers, by pricking holes in these bladders, gently pressing them, igniting the aperture by the flame of a candle, when it would continue flaming till all the 'spirit' was compressed out of the bladder, which was the more surprising, because no one could discern any difference between these bladders and those filled with common air."

Other persons have also, in former times, been conversant with the inflammability of this gas—as, for instance, Whitehaven, in Cumberland, at a colliery belonging to Sir J. Lowther, the gas, thus spontaneously produced, caught fire on the approach of a lighted candle, and yielded a flame more than two yards in height, and was conducted from the pit by a tube, to which smaller pipes were attached, and the gas was even burnt when required. A notice of this production of gas was also communicated to the Royal Society, in 1773, nearly 34 years after the first account of it in the same "Philosophical Transactions." These jets, or blowers of gas, as they are now technically called, have often been known to continue in activity for months, or even years, together—crevices, or fissures, in the coal or shale, pouring out several hundred bushels of fire-damp per minute. An instance of this occurs near Wall's End Church, where about four acres of very fertile coal, at a depth of about 150 fms., are drained, as it were, of gas by a 4-in. pipe, which is carried to the surface and above the chimney, and then ignited. A fiery streamer, of from 8 to 9 ft. in length, is thus constantly kept burning, and the rush of gas through the office roars like a blast-furnace. Not less than 11,000 bushels of gas per minute form the average supply collected from these four acres of coal. (Antiseptic Geology, vol. 2, p. 472).

Contemporary with the circumstance mentioned as taking place at the Whitehaven Colliery, gas was also produced (but from the distillation of coal), by Dr. Hales and Dr. Watson, two very distinguished men in their day, the first reports being obtained 31 yrs. of condensable air. Dr. Watson also observes, that he took a quantity of Newcastle coal, and putting them into a retort, he fired and distilled—and, during the distillation, he says, the product of gas was so great, that, unless he had given vent (as in the case of Dr. Hales), it would have burst the retort; and he, therefore, concluded, it was the same kind of elastic vapour as had been discovered by Dr. Hales. He also was aware of the inflammability of the gas so produced. The celebrated philosopher, Dr. Benjamin Franklin, seems also to have been acquainted with the production of this gas; for, in a letter of his, dated Passy, near Paris, Jan. 16, 1784, he speaks of "balloons" and their public importance, on which he introduces some curious speculations, and on which subject he was in correspondence with Sir Joseph Banks, to whom, referring to Mongolfier and Charles's balloons, and describing the latter, he says, "it was really filled with an inflammable air; but the quantity required being great, it was expensive and tedious filling, and required two or three days and nights' constant labour." Here he must have referred to hydrogen gas, produced by dilute sulphuric acid and iron filings. He then observes, with reference to some jealousy that appeared to exist on the subject of balloons between France and England—"It is a pity that this cause should, as you imagine it may, have prevented the English from prosecuting these experiments, since they are so ingenious mechanisms, that in their hands it might have made a more rapid progress towards perfection, and the utility it is capable of affording." Even in this early stage of ballooning, when hydrogen gas was produced only at a very serious cost of materials and labour, Dr. Franklin thought it "a great and important discovery, and one that might be turned to account, and, possibly, give a new turn to human affairs—convincing sovereigns of the folly of wars, may, perhaps, be one effect of it, since it will be impracticable for the most potent of them to guard his dominions. Five thousand balloons (he observes) capable of taking two men each, would not cost more than five ships of the line, and where is the prince that could afford so to cover his country with troops for its defence, as that 10,000 men, descending from the clouds, might not, in many places, do an infinite deal of mischief, before force could be brought together to repel them?" After referring again to the expense of the then mode of filling balloons, he observes—"Mr. Morveau, a famous chemist at Dijon, had discovered an inflammable air, that will cost only a TWENTY-FIFTH PART of the price of that which is made by sulphuric acid and iron filings. THEY SAY IT IS MADE FROM SEA-COAL."

It is quite clear, therefore, from these statistics, that this gas, now so familiar to us, must have been known for ages; but the surprise and wonder remains, that its great usefulness was not before discovered. Lord Bacon beautifully observed, on this subject, that two wonders always exist—the first, how it can be done at all;—the second (when accomplished) that it was not done before! To add to this wonder, Lord Dun-

donald had a manufactory, or stores erected, for the purpose of "distilling pit-coals, for the tar, naphtha, pitch, and petroleum; they procured, and during this distillation, the gas frequently escaped and became ignited—then it was burned for the convenience of the workmen, when employed at night to give them light." It was a practice also in Scotland, where a highly bluish gas existed, for women engaged in knitting or lace-making, at night, to sit round lamps of this coal, ignited, to do their work by, instead of employing candles; and hence the name this coal has acquired of *connel or candle coal*.

Surprising as these facts may now appear, it is still more surprising, that, with all this knowledge brought so close, and apparently so near, to us, no useful application of it was ever made, save what is just mentioned, until Mr. William Murdoch, a Scotchman by birth, but associated with the eminent engineering house of Boulton and Watt, to whom there is no question the entire merit of the useful application of gas is due, and it is to this gentleman the meed of praise should be awarded. There are other claimants, as usual, for the honour of its introduction; the French lay claim to it from a M. Philip Lebon, an engineer, who made, in 1799, a communication to the French Institute; and the following year, obtained a patent, in France, for producing gas for illumination from wood. He does not, however, appear to have used coal, and as the gas from wood is of a very feeble illuminating quality, it is no wonder that he failed, or that his scheme was never followed!—on the contrary, Paris, and almost all France, has been lighted up by gas produced from coal, and principally by the means of English engineers: English enterprise, and capital. He appears, moreover, never to have instituted any experiments, with a view to ascertain the comparative value of the gas, produced by him, as compared with oil or candles: now, Mr. Murdoch did this; and it is this, as showing his great and comprehensive knowledge of the subject, that constitutes his claim to priority; and that there may remain no doubt, as to whom this merit is due, I will read Mr. Murdoch's own modest account of the origin and progress of his experiments, for the application of gas to the purpose of lighting, instead of lamps and candles—contained in a paper, submitted by him, to the Royal Society in 1808, and published in their "Philosophical Transactions" of that year. He begins—"It is now nearly 16 years since, in a course of experiments I was making at Redruth, in Cornwall, upon the quantities and quality of different kinds of gases produced by the distillation from different mineral and vegetable substances, I was induced by some observations I had previously made upon the burning of coal, to try the combustible property of the gases produced from it, as well as from peat, wood, and other inflammable substances; and being struck with the great quantities of gas which they afforded, as well as with the brilliancy of the light, and the facility of its production, I instituted several experiments, with a view of ascertaining the cost at which it might be obtained, compared with that of equal quantities of light yielded by oils and tallow. My apparatus consisted of an iron retort, with tuned copper and iron tubes, through which the gas was conducted to a considerable distance; and there, as well as at intermediate points, was burned through apertures of varied forms and dimensions. The experiments were made upon coal of different qualities, which I procured from distant parts of the kingdom, for the purpose of ascertaining which would give the most economical results. The gas was also washed with water, and other means were employed to purify it."

In the year 1798, I removed from Cornwall to Messrs. Boulton, Watt, and Co.'s works, for the manufactory of steam-engines, at the Soho Foundry;—and there I constructed an apparatus upon a larger scale, which, during many successive nights, was applied to the lighting their principal buildings, and various new methods were practised of waaling and purifying the gas.

The experiments were continued, with some interruption, until the peace of 1802, when a public display of this light was made by me, in the illumination of Mr. Boulton's manufactory at Redruth, in Cornwall;—since that period, I have, under the sanction of Messrs. Boulton, Watt, and Co., extended the apparatus at Soho Foundry, so as to give light to all the principal shops where it is in regular use, to the exclusion of other artificial lights.

At the time I commenced my experiment, I was certainly unacquainted with the circumstance of the gas from coal having been observed by others to be capable of combustion; but I am since informed, that the current of gas, escaping from Lord Dundonald's tar ovens, had been frequently fired; and I find that Dr. Clayton, in a paper in vol. 41 of "Transactions of the Royal Society," so long ago as the year 1738, gave an account of some observations and experiments made by him, which clearly manifest his knowledge of the inflammable property of gas, which he designates the "spirit of coals;"—but the idea of applying it as an economical substitute for oils and tallow does not appear to have occurred to this gentleman; and I believe I may, without presuming too much, claim both the first idea of applying, and the first actual application of this gas to economical purposes." It is clear, therefore, that, in 1792, Mr. Murdoch began his experiments, and that, before 1802, he had ascertained the economical value of gas. After this time, and by the year 1804, he had introduced gas into many extensive manufactories in England—amongst others, Messrs. Phillips and Lee's extensive cotton works at Manchester, and Messrs. Gott's great woollen works at Leeds. Just at this time, however, in 1804, a Mr. Winsor, a Prussian by birth, made his appearance in London, with a scheme for lighting the metropolis with coal gas. He took out a patent, and published some most wild and visionary papers, to show the advantages of gas, and with the view of instituting a company to carry out his project, which company he designated "THE NATIONAL LIGHT AND HEAT COMPANY;" the profits of his scheme he calculated would be so great, as to enable the Government to pay off the National Debt. This prospectus is still extant; it was issued by F. A. Winsor, of 37, Pall Mall, and printed by Watts and Bridgwater, 31, South Molton-street, London.

Mr. Winsor was aided in this scheme by the celebrated chemist "Accum," of book-making notoriety, and his equally wonderful "Death in the Pot" they lighted-up the Lyceum Theatre with gas, also the Colonnade in front of the late Carlton House, in Pall Mall, and obtained thereby the sanction and patronage of the Prince Regent, afterwards George the Fourth. After floundering about for a length of time, expending large sums of money, without, however, any useful end being attained, certain persons, who, commercially speaking, fancied they saw, under different arrangements, and with different persons, that benefit might be derived from the scheme, formed themselves into a company; and moderating considerably their views and expectations, applied to Parliament for an Act of Incorporation, to enable them to raise capital to carry their views into effect. In this they were opposed by the Royal Society, London, Watt and Co., as being first in the field, and having a prior right and claim—both as to the origin of the application, and their superior ability to carry it out—the Company claiming, not the merit, or any value for the introduction of the gas, but founding their claim on certain discoveries, which they alleged they had made in the products of coke, tar, naphtha, pitch, petroleum, ammonia, &c., through which, and not by the gas (the merit of the discovery, of which they cited to Messrs. Murdoch, Boulton, and Watt) they were to obtain a handsome remuneration for their capital. The case, however, in favour of Messrs. Murdoch, was so strong, and that of the company so manifestly weak, that Parliament made, and appointed a committee of the Royal Society, of whom the late Sir Humphrey Davy was the head. It is interesting to know, that, in the experiments instituted on this occasion, by the Royal Commission, to determine whether any danger would result from the introduction of the lighting "by gas," the "Inflam Lamp," or the principle of it, was first discovered—it being then ascertained, that inflammable gas was incapable of transmitting flame through tubes, beyond the distance of their respective diameters; and that, consequently, the meshes of fine iron wire-gauze, applied to any inflammable gas, acted as tubes, and effectually cut off all communication between the ignited gas and that immediately in contact with it—the result of this inquiry, was, in addition, favourable to the introduction of gas, and almost immediately after, it began to make rapid strides in the metropolis.

In the years 1817, 1818, 1819, and 1820, it was introduced into the large provincial towns, commencing with Birmingham, Bristol, Chester, Liverpool, Glasgow, Edinburgh, Manchester, &c. Devonport did not receive the benefit of it till the year 1825-6, and many towns and villages are even now receiving the benefit of it; but it is every day becoming more and more general, and the increase in its manufacture and demand, and the quantity supplied throughout the kingdom is so prodigious, as to be almost beyond credence. Leaving this for treated, only, on the history of its introduction, and origin of gas, and brought before you the merit of its first and earliest introduction, I will now proceed to describe to you the process of its manufacture, which I shall, I hope, be able to do, more clearly, by the aid of the several drawings and diagrams on the walls, as well as by the models of the different apparatus on the table; and this part of the subject, if not containing the same interest and information, may be more generally valuable, as showing, practically, the process of the gas manufacture.

Here follows a description of gas making, which was given in the Journal of Nov. 21.] To continue, I am afraid I have trespassed too much on your time, and fatigued you with the details; they are all, however, as I consider, interesting to be known, and the early history I have troubled you with is quite due to the eminent men whose names I have deservedly brought to your notice—amongst which, most undoubtedly, stands pre-eminent in the rank of usefulness, that of Murdoch—William Murdoch, who rocked his children's cradle by means of steam, and who had a locomotive steam-carriage, in those early days, running round his room for their amusement and exercise—such was Murdoch, the discoverer of gas illumination. The next lecture I shall have the honour of giving will be on the same subject, but confined to its applicability and economy.

A small balloon, with car, &c., had been provided by the lecturer, filled with coal-gas, and sent up in the lecture room.

Just published, Part I.

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EXTRACT from the "Proceedings of the Institution of Civil Engineers," Tuesday, May 26 1846.—Sir JOHN BAXTER, president, in the chair.

"A gas burner, of a novel and ingenious construction, was exhibited. The principal novelty was the introduction of a stream of air to the centre of the flame by a hollow button in the middle of the burner. The air passing up through the hollow stem of the button, was heated, and passed out by two series of fire-holes around the periphery, and impinging with force on the flame of the gas curved it outwards in the shape of a tulip, while the oxygen of the air, mingling with the carburetted hydrogen gas, produced a very perfect combustion. The flame was quite white down to the top of the burner—was very steady, as was simply demonstrated by the excellent light of the institution, where those burners have been used. In comparing the consumption of these burners with that of the concentric ring burners, and trying the power of the two lights by the photometer, the new burner gave a better light, with a saving of rather more than one-third."

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"In a series of experiments made upon Clark, McNeill, and Co.'s Patent Universal Gas Burner, its superiority was satisfactorily established in economy and the quality of the light; tested against argand burners, Nos. 4 (13 holes), and 6 (15 holes), it afforded a saving of at least 25 per cent., and against three fish-tail burners, No. 4, 40 per cent. The colour and brilliancy of the flame is superior to any other burner."

T. W. KEATINGE, Consulting Chemist, J. D. PALMER, Mechanical Inspector.

The UNIVERSAL GAS BURNER is used nightly at the Polytechnic Institution, and may be had and seen from 11 till 4, at the patentees, 60, St. Martin's-lane Charing Cross, and of all gas fitters in London.

NO BREWING UTENSILS REQUIRED.

PATENT CONCENTRATED MALT AND HOP EXTRACT

enables PRIVATE INDIVIDUALS to MAKE FINE HOME-BREWED ALE, WITHOUT EMPLOYING ANY BREWING UTENSILS.—It has only to be dissolved in hot-water and fermented.—Sold, in Jars, for medicinal and other purposes, at 1s. and 12s. 6d. each, by the

BRITISH NATIONAL MALT EXTRACT COMPANY, 7, NICHOLAS-LANE, LOMBARD-STREET; Petty, Wood, and Co., 83, Thranedon-street; Wix and Sons, 22, Leadenhall-street; Dally and Co., 15, Finsbury-pavement; De Castro and Peach, 65, Piccadilly; Hockin and Co., 38, Duke-street, Manchester-square; and all men and grocers generally.

Also, just published, and may be had gratis, NATIONAL BREWING: A GUIDE TO THE USE OF CONCENTRATED MALT AND HOP EXTRACT, for BREWING and WINE MAKING; to which is added, MEDICAL OPINIONS relative to the virtues of malt and hops.

Copy of a Letter from "COLONEL HAWKER" (the well-known author on "GUNS AND SHOOTING")

Longford House, near Whitechurch, Hants, Oct. 21, 1846.

Sir,—I cannot resist informing you of the extraordinary effect that I have experienced by taking only a few of your LOZENGES. I had a cough, for several weeks, that defied all that had been prescribed for me; and yet I got completely rid of it by taking about half a small box of your Lozenges, which I find are the only ones that relieve the cough without deranging the stomach or digestive organs.—I am, Sir, your humble servant, P. HAWKER, 79, St. Paul's Churchyard.

KEATING'S COUGH LOZENGES ARE PATRONISED also

by His Majesty the King of Prussia, His Majesty the King of Hanover, and most of the Nobility and Clergy of the United Kingdom, and are especially recommended by the Faculty.

RECENT TESTIMONIAL.

DEAR SIR,—Having been, for a considerable time during the winter, afflicted with a violent cough, particularly at lying down in bed, which continued for several hours incessantly, and after trying many medicines without the slightest effect, I was induced to try your Lozenges; and, by taking about half a box of them, in less than 24 hours, the cough entirely left me, and I have been perfectly free from it ever since. J. CLAREMONT-terrace, Pontonville, Feb. 17, 1845.

Mr. KEATINGE. (Late proprietor of the Chancery Coffee-house, St. Paul's.)

Prepared and sold in boxes, 1s. 1d., and tins, 2s. 9d., 4s. 6d., and 10s. 6d. each, by T. Keatinge, chemist, &c., No. 79, St. Paul's Churchyard, London; and retail by all druggists and patent medicine vendors in the Kingdom.

N.B.—To prevent spurious imitations please to observe that the words "KEATING'S COUGH LOZENGES" are engraved on the Government stamp of each box.

NOTICE.—These Lozenges contain no opium, or any preparation of that drug.

CURTIS ON NERVOUS AND GENERATIVE DISEASES.

Just published, a Medical Work, in a sealed envelope, 3s., and sent, post-paid, for 3s. 6d.

MANHOOD: THE CAUSES OF ITS PREMATURE DECLINE,

with plain directions for its perfect restoration; addressed to those suffering from nervous debility or mental irritation, followed by observations on Marriage; the treatment of diseases of the generative system; illustrated with cases, &c. By J. L. CURTIS and Co., consulting surgeons, 7, Fritch street, Soho-square, London.

Published by the authors, and may be had at their residence; also sold by Strange, 21, Paternoster-row, London; Guest, 51, Bull-street, Birmingham; T. Sowter, 4, St. Ann's-square, Manchester; G. Phillips, South Castle-street, Liverpool; W. H. Robinson, booksellers, Greenside-street, Edinburgh; Campbell, druggist, Argyll-street, Glasgow; and sold in a sealed envelope by all booksellers.

Reviews of the Work.

MANHOOD. By J. L. CURTIS and Co. (Strange). In this age of pretension, when the privileges of the true are constantly usurped by the false and the untrue, it is difficult to afford the sufferer from nervous debility, the unerring means of judgment where to seek relief. The authors of this work have obviated the difficulty. Their long experience and reputation in the treatment of these painful diseases is the patient's guarantee, and well deserves for the work its immense circulation.—Era.

CURTIS ON MANHOOD (Strange).—A perusal of this work will easily distinguish its talented authors from the host of medical writers whose pretensions to cure all diseases are daily so indecently thrust before the public. Its originality is apparent, and its personal breeches consolation and hope to the mind of the patient.—Nava and Military Gazette.

CURTIS ON MANHOOD should be in the hands of youth and old age. It is a medical publication, ably written, and develops the treatment of a class of painful maladies which has too long been the prey of the illiterate and designing.—United Service Gazette.

Messrs. Curtis and Co. are to be consulted daily at their residence, No. 7, Fritch-street Soho-square, London.

Country Patients are requested to be as minute as possible in the detail of their cases. The communication must be accompanied by the usual consultation fee of £1, and the work sent to any address for 3s. 6d. in postage stamps, direct from the authors, or either of the above agents.

THE SILENT FRIEND: a medical work, on the concealed

cause of constitutional or acquired debility, loss of muscular energy, and derangement of the generative system; nervous debility, constitutional weakness, excessive indulgence, &c.; with Observations on Marriage, &c. By R. and L. PERRY and Co., surgeons, London. Published by the authors, and sold at their residence; also by Strange, 21, Paternoster-row; Hammy & Co., 63, Oxford-street; Noble, 109, Chancery-lane; Gordon 146, Leadenhall-street; Purkis, Compton-street, Soho, London.

Part I. of this work is addressed to those who are prevented from forming a matrimonial alliance, and will be found an available introduction to the means of perfect and permanent restoration to manhood.—Part II. treats upon those forms of disease, either in their primary or secondary state, arising from infection—showing how numbers neglect to obtain competent medical aid, entail upon themselves years of misery and suffering.

THE CORDIAL BALM OF SYRIACUM is a stimulant and renovator in all cases of constitutional or acquired debility; by its use the whole system becomes restored to a healthy state of organisation. Sold in bottles, price 11s. and 33s.

THE CONCENTRATED DETENSIVE ESSENCE.—An anti-syphilitic remedy for scouring out and purifying the blood from venereal contamination, scurvy, blotches on the head, face, and body, ulcers, and those painful affections arising from improper treatment, or the effects of mercury, or secondary symptoms. Price 11s. and 33s. per bottle, and 25s. cases.

PERRY'S PURIFYING SPECIFIC PILLS are perfectly free from mercury, calomel, and other deleterious drugs, and may be taken with safety without interference with or loss of time from business, and may be relied upon in every instance. Sold in boxes, at 2s. 9d., 4s. 6d., and 11s. each, by all medicine vendors—of whom may be had the Silent Friend.—Messrs. R. and L. Perry and Co. may be consulted at No. 19, Berners-street, Oxford-street, London, daily.

ON THE SECRET INFIRMITIES OF YOUTH AND MATURITY.

With 25 coloured engravings. Just published, sixteenth thousand (in a sealed envelope), price 2s. 6d.; or post-paid to any address, for 3s. 6d., in postage stamps, or Post-office order.

SELF-PRESERVATION: A Medical Treatise on Marriage, and

on the Secret Infirmities and Disorders of Youth and Maturity. Illustrated with 25 coloured plates on the anatomy, physiology, and diseases of the urinary and reproductive organs, explaining their various structures, uses, and functions, and the injuries that are produced by the abuse of the system, and the consequences of various diseases, either in their treatment of nervous debility, local and constitutional weakness, syphilis, stricture, and other diseases of the urethra. By SAMUEL LA MERT, consulting surgeon, 5, Bedford-street, Bedford-square, London, Matrimonial Member of the University of Edinburgh, Honorary Member of the London Hospital Medical Society, Licentiate of Apothecaries Hall, London, &c.

Reviews of the Work.

"The author of this singular and talented work is a legally qualified medical man, who has evidently had considerable experience in the treatment of the various disorders, arising from the abuse of the system, and the consequences of various diseases, either in their treatment, or the effects of mercury, or secondary symptoms. Price 11s. and 33s. per bottle, and 25s. cases."

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY.....West Wheel Mining Company—Bedford Hotel, Tavistock, Eleven.
MONDAY.....West Wheel Mining Company—Bedford Hotel, Tavistock, Eleven.
 General Mining Company for Ireland—offices, Dublin, at Eleven.
 Bahia Steam Navigation Company—offices, at One, for half-past.
TUESDAY.....Peninsular and Oriental Steam Navigation Company—offices, at One.
 Sligo and Shannon Railway—offices, at One.
 Sligo Ship Canal Company—offices, at Twelve.
WEDNESDAY.....Provincial Bank of Ireland—offices, at Twelve.
 Protector Life Association—offices, at One.
 Llynvi Valley Railway Company—London Tavern, at Two.
 General Annuity Endowment Association—London Tavern, at Two.

[The meetings of Mining Companies are inserted among the Mining Intelligence.]

BRISTOL AND EXETER RAILWAY.

A special general meeting of the proprietors was held at the White Lion Hotel, Broad-street, Bristol, on Thursday, the 3d inst., for the purpose of considering the propriety of constructing, either alone or in conjunction with some other company, several newly-projected lines of railway.—1. A railway from the Bristol and Exeter Railway, near Taunton, to join the Wilts, Somerset, and Weymouth Railway, near Castle Cary.—2. A railway from the Bristol and Exeter Railway, near Bleadon, to Wells, Glastonbury, and Street, where it is intended to join the proposed railway from Taunton to Castle Cary.—3. A railway from Crediton, in the county of Devon, to Launceston, in the county of Cornwall.—4. A railway from Launceston to Liskeard, there to join the Cornwall Railway.—The chair was taken by J. BROWNE, Esq., one of the directors.—The SECRETARY (Mr. J. B. Badham) read the report of the directors, which, after explaining the grounds on which these schemes were adopted, apologised for not submitting them earlier, from a hope entertained of coming to an understanding with the Great Western. That hope having vanished, Mr. Brunel's resignation was accepted, and Mr. C. H. Gregory appointed the company's engineer-in-chief. The report proceeded: "Your directors consider it better to postpone to a future period the mode of raising the capital that will be required for the measures now proposed, as they will then have the advantage of proportioning the creation of new shares to the extent of the new lines which may be sanctioned by the Legislature. It will be in the power of the directors to fulfil the requirements of the Standing Orders in respect to the deposits upon the new schemes, without any present increase of the share capital, and a resolution will be proposed for your approval, sanctioning this arrangement. Few large railways in England are encumbered with so small an extent of engagements as the Bristol and Exeter. Your shares in the South Devon and Cornwall lines, and the lease of the Exeter and Crediton, are the only ones, and no serious amount has hitherto been devoted to Parliamentary contests, so that you are in the best position to take your stand as an independent company, and to adopt the strong measures of defence now called for by the costly and comprehensive schemes of your competitors for the traffic from Devon and Cornwall towards London and the North. By separate termini at Exeter, a separate access to the South Devon line, and to the whole of the country west of that city, they aim to intercept streams of traffic which naturally belong to the Bristol and Exeter Company. This is a position which your directors clearly foresaw, and which, as was mentioned to you a year ago, induced them to recommend to your adoption the arrangements which they had prepared."

The CHAIRMAN said he regretted that their respected chairman, Mr. Gibbs, was not presiding over that meeting, and that the reason Mr. Gibbs was not present was his not being able cordially to unite with his brother directors in the measures which they had thought it necessary for the interests of the Bristol and Exeter Company to promote. After some strong expressions of respect for Mr. Gibbs, the chairman proceeded to remark, that it was necessary to bear in mind what had been the position of their company. Up to a very late period there had been a cordial co-operation between them and the Great Western Company; they had both employed the same engineers, and to some extent the same solicitors. The difficulties attending the severance of that cordiality had been, he could state, very great. In taking into consideration the schemes now brought forward by the Bristol and Exeter directors, they must not lose sight of the fact that the Great Western Company was putting forward a plan for a line of railway from Yeovil to Exeter, with a separate station at Exeter, and a junction with the South Devon line, thus intercepting the traffic over the Bristol and Exeter line. (Hear.) They had also a scheme for giving accommodation to the north of Devon, independent of the Bristol and Exeter line. (Hear.) The other great company which was projecting an extended scheme of railway accommodation for Devonshire, also contemplated a separate station at Exeter, thus intercepting and bringing upon their line the traffic to which they (the Bristol and Exeter Company) had looked for the success of their undertaking. With such formidable rivals in the field it became the duty of the directors to do the best they could for the protection of the proprietors' interests. Looking at the fact, that their own line was formed to Exeter, that it was the trunk line to the west, and that it would soon be open to Crediton, the directors believed, that if they showed a disposition to accommodate the public, the Legislature would give them the preference. The directors had anxiously considered these projects, and considering that as they looked forward to the working of their line, as an independent line, they should take every step for the preservation and development of their traffic, they strongly recommended the proprietors to arm them with powers to carry out the schemes. Resolutions in accordance with the recommendation of the directors were unanimously adopted, and several proprietors spoke in favour of the plans put forward by the board.—In the course of the conversation, it was stated that Mr. Gibbs had not withdrawn from the board.—Thanks were voted to the chairman, and the meeting separated.

REGENT'S CANAL COMPANY.

A general meeting of the shareholders was held at their offices, at the Canal-basin, City-road, on Wednesday, the 2d inst.
 J. E. D. BETHUNE, Esq., in the chair.
 The report stated, that the profit balance to the 30th September last was 13,670l. 5s. 1d., including 600l. 5s. 4d. remaining from the last account, which, after the payment of the dividend proposed to-day, would leave a sum of 819l. 9s. 1d. to the benefit of the next half-year. All the documents for the bill for the railway were deposited with the proper officers, and the directors were quite prepared to go on with the scheme. A further sum of 4474l. 9s. 4d. had been borrowed from the reserve fund, to pay for the property required for the formation of the new entrance to the Limehouse Dock. The committee were happy to say, that they were now in possession of the property, and that the plans, &c., for the work were ready, so that it could be commenced early in the next spring. With a view to benefit the traders on the canal, by an improved system of towing barges, arrangements had been made for the performance of this service by the company. Inasmuch, however, as an outlay would be required, in the first instance, for the erection of stabling and the purchase of horses, it was intended to charge such outlay, not exceeding 3000l., to the account of the reserved fund.—The report was adopted by the meeting.
 A resolution was then put, to the effect that a dividend of 12s. per share for the last half year should be declared, and that the transfer books should be closed for its payment from the 19th December to the 11th of January following. The motion having been seconded, after a short discussion, the resolution was adopted.
 In reply to an inquiry, as to the origin of the augmentation of the rents from 1670l. to 29654l., the CHAIRMAN stated, that it arose partly from the increase of rents, and partly from the payment of an arrear by the North Western Company.
 In answer to another question, the CHAIRMAN said, that the tonnage on the canal had increased from 884,000 to 1,082,000 tons between 1842 and 1845. Since 1836, the dividends had risen from 12s. to 24s. per year.
 To other inquiries, Mr. BETHUNE replied, that any shares of the contemplated railway would be offered in the first instance to the shareholders, in proportion to the number of shares held respectively by each. But there was to be no compulsion, and any shares declined would be offered afterwards to other proprietors. The 8000l. to be paid to the Regent's Canal Company by the Birmingham Junction Railway Company were contingent on the latter company getting their Act, and not on the formation of the railway. The company had obtained their Act, and the money would be due on the 26th of February next. The directors did not apprehend much opposition to the getting of their Act; and, under any circumstances, it was decided to keep the waterway of the canal uninjured.—Mr. GREKEK intimated his approbation of the measure. A formal resolution was passed for the next general half-yearly meeting, on Wednesday, the 2d of June next, the day appointed by Act of Parliament.

COMMUNICATION BETWEEN LONDON AND DUBLIN.—A Dublin correspondent drawing attention to a question closely connected with British and Irish interests, putting the matter problematically, says—"The rapid progress towards completion of the Chester and Holyhead Railway, promising within a few months to open a communication between the two capitals of about 11 or 12 hours, avoiding the frequently long, difficult, and dangerous passage from the Liffey to the Mersey, begins to occupy the serious consideration of all parties interested in steam communication on this side the channel. Various and conflicting opinions as to the results are held by the most intelligent and experienced. Parties interested in the Liverpool line of communication, while they admit the loss of the greater portion of their passenger traffic, contend that the expense of railway charges to Holyhead must be a bar to the heavy goods traffic coming by that route. This opinion must be looked at with some degree of suspicion, as a contrary admission would have the effect of seriously damaging the value of their property. The following view of the case is the more generally adopted opinion, and one entitled to respect, at least as more disinterested, than as the railway diverging from Dublin north and south are completed, they will present a connection with the Holyhead, so certain and rapid a facility of communication, and transit, both with London and the manufacturing districts of England, that the whole or nearly whole traffic of Ireland must concentrate itself at Holyhead. This opinion is backed further by the argument, that the cost of work-

ing steamers from the various ports of Ireland to Holyhead, will be so much less than to Liverpool, as to counterbalance the cost of railway conveyance to and from the former port.

CROYDON ATMOSPHERIC RAILWAY.—The same sealing composition which was used for closing the longitudinal valve during the extreme heat of last summer, has passed through its first freezing ordeal with great success. Many persons prognosticated that a contrary result would ensue. The trains since Monday were all run with the greatest punctuality, and the valve composition appeared perfectly soft and plastic, and wholly unaffected by the frost, though the thermometer at Forest Hill registered between 24° and 25° during the whole of Tuesday and the latter part of Monday evening. Some slight irregularity had occurred, but this was caused by the drivers not knowing (in the absence of instruction) how to adapt the "pressing wheel" to the altered state of the temperature, and had no reference to any inefficiency of the apparatus or sealing composition.

DEPOSITS WITH THE RAILWAY COMMISSIONERS.—On Monday, in compliance with the Standing Orders, plans, sections, and books of reference for bills, in the ensuing session, were deposited with the railway commissioners, in lieu of the Board of Trade, with the private bill office, and with the clerks of the peace, connected with the various counties through which the line or lines have to run; when about 300 plans for these purposes were deposited. The number last year amounted to 678, including Scotch and Irish.

On Monday, the first goods train left Ipswich for Bury, with about 50 or 60 tons, among which was a large quantity of coals.—The Wydmondham and Dereham line will be opened for public traffic on Monday.—The branch line from Margate to Ramsgate was opened on Tuesday.—The York and Newcastle Railway Company has given an order for three miles of tru. cks.

THE SLIGO SHIP CANAL.—We find that the Sligo Ship Canal is about to be incorporated with the Sligo and Shannon Railway. We trust that this is but a preliminary step towards commencing the works. The Government allege that they are anxious to encourage works of a reproductive nature, and, God knows, the sooner they set about it the better, for the public money is at present absolutely thrown away. Here is a work upon which hundreds of labourers could be employed; a work which will, when completed, confer immense advantages upon Sligo and Leitrim, by opening up a vast district of country, and affording the inhabitants thereof, facilities of sending their agricultural produce to our port for exportation. We have no doubt when the next special sessions is held in Sligo, that the magistrates and cess payers will approve of a grant towards this most useful undertaking; and we trust that the gentry of Leitrim will also display their good sense, and desire to improve the condition of the people, by presenting for the ship canal. If the matter be properly taken up, and the advantages of the work fairly set forth, we have no doubt of its receiving the approbation of Lord Bessborough.—*Sligo Champion*.

EAST LINCOLNSHIRE RAILWAY.—TENDERS FOR

SLEEPERS.—The directors will meet at Lincoln on Saturday, the 19th December, at Twelve o'clock, to RECEIVE TENDERS for the DELIVERY of FIFTY THOUSAND SLEEPERS.—Particulars may be had at Mr. Fowler's offices, 3, Aldington-street, Westminster.—Dec. 3, 1846.

BIRMINGHAM AND OXFORD JUNCTION RAILWAY.

AND BIRMINGHAM, WOLVERHAMPTON, AND DUDLEY RAILWAY.—Notice is hereby given, that the SEALED CERTIFICATES of these companies will be ISSUED IN EXCHANGE for the RECEIPTS for SCRIP, on and after the 14th Dec. next.
 THOMAS HOLROYD, Secretary,
 Birmingham and Oxford Junction Railway Company.
 JOHN WILLIAM KIRSHAW, Secretary,
 Birmingham, Wolverhampton, and Dudley Railway Company.
 34, Bennett's-hill, Birmingham, Nov. 24, 1846.

BIRMINGHAM, WOLVERHAMPTON, AND DUDLEY

RAILWAY.—CONTRACT FOR WORKS.—Notice is hereby given, that the directors of this company will meet at their offices, 34, Bennett's Hill, Birmingham, on Monday, the 14th Dec., at Twelve o'clock in the day, for the purpose of RECEIVING TENDERS for the construction of the following works:—
 GREAT BRIDGE CONTRACT—from Vyse-street, Birmingham, to Great Bridge, being a distance of about six miles.

Drawings and specifications of the line may be seen from the 16th Nov. to the 1st Dec. (inclusive), at No. 102, Constitution-hill, Birmingham; and from the 2d Dec. to the 12th Dec. (inclusive), at No. 17, Great George-street, Westminster.
 The necessary forms of tender may be obtained at those places during the above-named periods.
 Tenders are to be delivered at the offices of the company on or before the 14th Dec., not later than Twelve o'clock in the day, when and where persons tendering are requested to be in attendance.
 The directors do not pledge themselves to accept the lowest tender.

WILLIAM MATTHEWS, Chairman,
 JOHN WILLIAM KIRSHAW, Secretary.
 34, Bennett's-hill, Birmingham, Oct. 28, 1846.

NOTE.—Nov. 16, 1846.—Contractors wishing to tender for the above contract, are requested to meet at No. 17, Great George-street, Westminster, on the 23d inst., at Two o'clock p.m., for the purpose of appointing a surveyor to take out the quantities in the usual way; and also to receive lithograph copies of the plan, sections, and specifications.

BRISTOL AND POOLE HARBOUR RAILWAY.—Notice

is hereby given, that the acting committee of this company will proceed, on the 13th day of December next, to ALLOT the several SHARES.
 No application will be received after the 8th of that month.
 Dated, November 12, 1846. CASTLEMAN & KINGDON, Secretaries pro tem.

BRISTOL AND EXETER RAILWAY COMPANY.—At a

Special General Meeting of the proprietors of the Bristol and Exeter Railway Company, held on Thursday, the 3d December, 1846, at the White Lion Hotel, Broad-street, and by adjournment at the Assembly Rooms, Prince's-street, Bristol,
 JOHN BROWNE, Esq., in the chair.

It was unanimously resolved—
 1. That the report of the directors be received and adopted, and that they be authorised and empowered to apply to Parliament in the ensuing session for power for the company to construct the following lines of railway—viz:—
 A line of railway from the Bristol and Exeter Railway near Taunton, to join the Wilts, Somerset, and Weymouth Railway, near Castle Cary.
 A line of railway from the Bristol and Exeter Railway near Bleadon, to Wells, Glastonbury, and Street, where it is intended to join the proposed railway from Taunton to Castle Cary.
 A railway from Crediton, in the county of Devon, to Launceston, in the county of Cornwall.
 And also, that this company do subscribe for the necessary capital in the Liskeard and Launceston Branch Railway Company, for the construction of that line—viz., from Launceston to Donlebois, near Liskeard, where it is proposed to join the Cornwall Railway.
 2. That the issue of new shares to provide the capital required for the lines now authorised be postponed to the discretion of the directors; and that, in the meantime, they be authorised on behalf of the company to make such arrangements for providing the amount to be deposited in the Bank of England, and otherwise complying with the Standing Orders of Parliament, as they find expedient; and also, that they are authorised to oppose in Parliament, or otherwise, any projects which they may consider injurious to the interests of this company.
 3. That the best thanks of this meeting be given to the directors, for their zeal and judgment in managing the affairs of this company. JOHN BROWNE, Chairman.
 4. That the best thanks of this meeting be given to John Browne, Esq., for his able and courteous conduct in the chair.

CORNWALL RAILWAY.—Notice is hereby given, that, in pursuance of the provisions of the Act of Incorporation, the FIRST GENERAL MEETING of proprietors in this undertaking will be HELD in the Assembly Rooms, at Truro, on Wednesday, the 16th December next, at noon.—Those proprietors only who have been previously registered can attend and vote at the meeting.
 JOSEPH THOMAS TREFFRY, Chairman.
 WILLIAM H. BOND, Secretary.
 Cornwall Railway Office, 80, Lemon-street, Truro, Nov. 21, 1846.

The sealed certificate will be issued immediately after the above-mentioned meeting has been held.

CORNWALL RAILWAY.—Notice is hereby given, that a

SPECIAL GENERAL MEETING of the proprietors in this undertaking will be HELD in the Assembly Rooms, at Truro, on Wednesday, the 16th day of December next, at One o'clock in the afternoon, to consider the propriety of an application to Parliament for an Act for the alteration of the line of the Cornwall Railway between Plymouth and a point near Saltash; and for powers to purchase, lease, or jointly construct and use portions of the South Devon Railway and works, and to purchase the Saltash Ferry, and to sell or lease the new works to the Great Western Railway Company, or to the Bristol and Exeter Railway Company, or to the South Devon Railway Company.
 JOSEPH THOMAS TREFFRY, Chairman.
 W. H. BOND, Secretary.
 Cornwall Railway Office, 80, Lemon-street, Truro, Nov. 21, 1846.

DUFFRYN LLYNVI AND PORTHCAWL RAILWAY

COMPANY.—We, the undersigned, being proprietors in the above undertaking, each of whom is possessed of, or entitled unto, five shares, at the least, of £100 therein—do hereby direct you to call a Special General Meeting of the said company, to be held at the White Lion Inn, Bristol, on Tuesday, the 15th day of December next, at Twelve o'clock, for the purpose of affixing the common seal of the company to the terms of an agreement entered into on behalf of the said company and the promoters of the Llynvi Valley Railway Company, for the Union of the two companies; and to receive the report of the proceedings of the committee relative thereto. Also, to confirm the appointment of their engineer to proceed in the valuation of the Duffryn Llynvi and Porthcawl Railway and Port, according to the terms of the said agreement. Also, to authorise the committee, and the sub-committee appointed by them, to settle and approve the deed of union between the two companies, and to apply to Parliament in the ensuing session for an Act for that purpose—and for such other powers and authorities as may be expedient; and also to take all such measures, whether legal or otherwise, as they may be advised, for carrying into effect or enforcing such agreement. Also, for the purpose of altering and amending the bye-laws of the company, and for declaring a dividend for the half-year ending Oct. 31, 1846.
 (Signed)
 DIGBY MACKWORTH.
 ROBERT PRICE.
 JOHN HALCOMB.
 W. H. BUCKLAND.
 H. H. KNIGHT.
 M. P. SMITH.

Nov. 26, 1846.
 To Mr. W. S. Bradley, Clerk to the Company.

In obedience to the foregoing requisition, Notice is hereby given, that the said SPECIAL GENERAL MEETING will be HELD at the White Lion Inn, Bristol, on Tuesday, the 15th day of December next, at Twelve o'clock, for the purposes specified therein.
 Porthcawl, Nov. 26, 1846. W. S. BRADLEY, Clerk to the Company.

METROPOLITAN IRON AND STEEL COMPANY

(Provisionally Registered, pursuant to Act of Parliament, 7 and 8 Vic., c. 110.)

Capital £200,000, in 10,000 shares of £20 each.—Deposit £20 per share.

A company has been formed for the MANUFACTURE OF IRON AND STEEL (from cast, and all descriptions of old refuse iron), which shall be of a superior quality to any hitherto produced in the mining districts.—The objects of the company are fully explained in the prospectus.

In allotting the shares a preference will be given to parties in the iron trade.
 Applications for shares and prospectuses to be made to Mr. Charles Chilton, No. 39, Moorgate-street; or at the Steam Mills, 135, Old-street.

STEAM TO INDIA VIA EGYPT, MALTA, ITALY,

ALEXANDRIA, AND THE PENINSULAR PORTS.

PASSAGE TO BOMBAY, MADRAS, AND CALCUTTA.

The Peninsular and Oriental Steam Navigation Company BOOK PASSENGERS for CEYLON, MADRAS, AND CALCUTTA direct, by steamers leaving Southampton on the 20th, and for Alexandria, en route to Bombay, on the 1st of every month.

A steamer from Southampton leaves the 1st and 20th of every month for Malta, whence are steamers to Naples, Genoa, Civeta Vecchia, three times a month.

STEAM TO CORUNNA, OPORTO, VIGO, LISBON, CADIZ, AND GIBRALTAR.
 A steamer leaves Southampton on the 7th, 17th, and 27th of every month.

Apply at the Peninsular and Oriental Steam Navigation Company's offices, 51, St. Mary Axe, London, where only passages can be secured throughout.

STEAM COAL—WITHOUT SMOKE, as per experiments

made at her Majesty's Dockyard, Woolwich.

CAMERON'S COALBROOK STEAM COAL, AND SWANSEA AND LOUGHOR RAILWAY COMPANY.—(Completely Registered and Incorporated.)

OFFICES—2, MOORGATE-STREET, LONDON.
 The directors are now prepared to supply steam ship companies, manufacturers, shippers, and others, with the company's steam coal, either at the company's wharf at Swansea, or in London. A statement, showing by comparative trial the superiority of this coal for steam purposes over every other, and a scale of prices, may be had on application at the company's offices here, or at their wharf at Swansea.—March 18, 1846.

IMPORTANT TO ENGINEERS, MANUFACTURERS,

RAILWAY AND STEAM-BOAT COMPANIES.

Messrs. W. & C. MATHER beg to call the attention of the ABOVE PARTIES to their

IMPROVED PATENT ELASTIC METALLIC PISTONS.

THE PRINCIPAL FEATURE AND ADVANTAGE OF THIS IMPROVEMENT is—
 1. Its great ELASTICITY and SELF-ADJUSTING PROPERTIES, which enable it to yield to any inaccuracy of the cylinder, whether oval or taper, and to move with the least possible friction.
 2. Its extreme SIMPLICITY and LIGHTNESS, consisting of only two pieces of metal, having the vertical and lateral pressure in due and proper proportion, independent of each other.
 3. It takes the LEAST possible SPACE, and is well adapted for air and water-pumps, as it allows of a larger water way.

Messrs. W. & C. MATHER feel confident that it is the BEST ELASTIC METALLIC PACKING yet known, for the above reasons.

Models may be seen at the Ralford Iron-Works, Manchester; at W. Barker's, engineer, Newton-Moor; and also at J. Mather's, engineer, Beaufort-street, Chelsea, London.

TO ENGINEERS AND BOILER-MAKERS.

LAP-WELDED IRON TUBES FOR STEAM-BOILERS.

THE BIRMINGHAM PATENT IRON TUBE COMPANY,

47, CAMBRIDGE-STREET, BIRMINGHAM, & SMETWICK, STAFFORDSHIRE.

MANUFACTURE TUBES under an exclusive license from Mr. Richard Prosser, the patentee. These tubes are now very extensively used in the boilers of marine and locomotive steam-engines in England and on the continent—are stronger, lighter, cheaper, and more durable than brass or copper tubes, and warranted not to open in the weld. They may be fixed in the boilers without ferrules, and can be taken out and refixed without additional trouble or expense.—Address, 42, Cambridge-street, Crescent, Birmingham.

LONDON WAREHOUSE,
 68, UPPER THAMES-STREET.

TO ENGINEERS, BOILER-MAKERS, AND OTHERS.

LAP-WELDED IRON TUBES, FOR STEAM-BOILERS.

W. H. RICHARDSON, JUN., & CO., DARLSTON, STAFFORDSHIRE.

MANUFACTURE all DESCRIPTIONS OF WELDED WROUGHT-IRON TUBES, for STEAM, GAS, &c., of any required length and diameter, on the new and unequalled principle of Mr. J. Rouse's recent invention (patented August, 1846).—Address as above.

TO ENGINEERS, RAILWAY CONTRACTORS, MINING

AGENTS, IRONMASTERS, AND OTHERS REQUIRING FINE GREASE for

MACHINERY AND AXLES of every description.—JOSEPH PERCIVAL'S IMPROVED ANTI-FRICTION GREASE is—after trials on machinery and axles of every kind under constant friction is kept up—admitted to be the most useful, economical, and best preparation of the kind ever offered to the public.

References to scientific and practical men can be given, and testimonials shown of its great excellence.—Samples forwarded on application at the manufactory, Green-street, Wellington-street, Blackfriars-road, London.

THE PROJECTED RAILWAYS.

PATENT METALLIC SAND OR ENGLISH POZZOLANO.

—THE PROPRIETORS OF THE METALLIC SAND, after many years' experience of its merits, confidently RECOMMEND it to the attention of Engineers, Architects, Builders, and the public generally, as an invaluable article for HYDRAULIC AND OTHER WORKS requiring great strength and durability.

In analysis, the metallic sand is very similar to the Italian Pozzolano—the value of which, in all subaqueous works, is so well known to engineers and architects; but from its granular form, and the sharpness of its angles, and the increased quantity of iron it contains, the metallic sand has been found more durable, and much cheaper than any other similar material at present in use.

From its chemical qualities it forms, in admixture with lime and common sand, a cement, mortar, or concrete, of flinty hardness, and almost entire impenetrability; and from its adhesive and impervious qualities, it completely and for ever excludes water. The more it is exposed to the atmosphere, and to wet and damp, the harder and more durable it becomes. In the formation of mortar and concrete, it has been extensively used in the great tunnels on the London and Birmingham Railway, in the foundations of the New Houses of Parliament, sea walls on the North Devon Railway, Clifton Reservoirs, and other works of importance.

As an external stucco, the metallic sand cement is unaffected by frost or wet; in appearance it resembles the best Portland stone; requires, therefore, neither colour nor paint, and is entirely free from vegetative cracks and blisters, to which Roman cement is liable.

Further information will be given, and specimens shown, on application to Mr. C. K. Dyer, 4, New Broad-street; and at the Metallic Cement Wharf, King's Road (opposite Pratt-street), Camden New Town, London.

ANALYSIS OF THE PATENT METALLIC SAND.

Silica 49 Lime 6
 Oxide of iron 32 Magnesia 2
 Alumina 6 Zinc 3
 Arsenic and carbonate of copper 2

IMPORTANT TO RAILWAY COMPANIES.

PATENT KAMPTULICON COMPANY, 18, CORNHILL.

This company having completed their new factory, are prepared to supply railway managers and contractors with an elastic material (perfectly non-absorbent) to place between the rails and sleepers, and between the frames and bodies of carriages, to prevent jarring, and, consequently, wear and tear. The elastic planking is strongly recommended to be used for the backs and sides of carriages, to prevent splinters when accidents occur.

By order of the board, P. G. GREVILLE, Secretary.

PATENT IMPROVEMENTS IN CHRONOMETERS,

WATCHES, AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street,

watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometer watches and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6s. each; in gold cases, from £3 to £10 extra. Gold horizontal watches, with gold dials, from 8s. to 12s. each.

DENT'S PATENT DIPLIDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

NATIONAL LOAN FUND LIFE ASSURANCE SOCIETY.

26, CORNHILL, LONDON.

Capital £500,000.—Empowered by Act of Parliament.
 This institution embraces important and substantial advantages with respect to Life Assurances and Deferred Annuities. The assured has, on all occasions, the power to borrow, without expense or forfeiture of the policy, two-thirds of the premiums paid (see table); also the option of selecting benefits, and the conversion of his interests to meet other conveniences or necessity.

Assurances for terms of years are granted on the lowest possible rates.
 The remarkable success and increasing prosperity of the society has enabled the directors, at the last annual investigation, to declare a fourth bonus, varying from 35 to 85 per cent. on the premiums paid on each policy effected on the profit scale.

EXAMPLES.

Sum.	Prem.	Year.	Bonus added.	Bonus in Cash.	Permanent reduction of Premium.	Assured may Borrow.
£1000	£0 3 4	1837	£217 15 1	£109 0 11	£16 0 4	£445 0 4
		1838	192 3 0	87 1 4	13 10 2	385 11 3
		1839	165 11 10	74 1 9	11 3	346 2 3
		1840	116 7 6	54 0 10	7 18 10	296 13 4
		1841	111 6 8	49 10 0	7 10 4	247 4 5

The Division of profits is annual, and the next will be made in December of the present year.
 F. FERGUSON CAMROUX, Secretary.

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